1927 MILL and MILL EQUIPMENT NUMBER

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PAPER TRADE JOURNAL

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Vol. LXXXV, No. 17 OCTOBER 27, 1927 Per annum $4.00 Per Copy 10 Cents

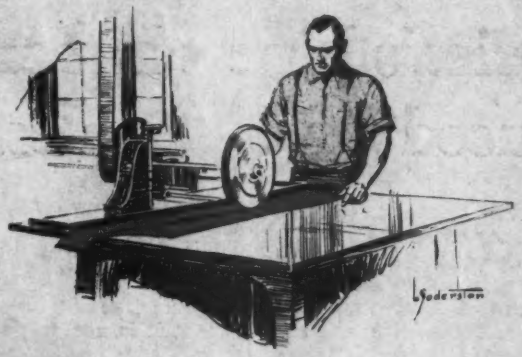
They run their machines with their brains

A good deal of manufacturing is automatic these days and machines that seem almost human appear to have taken a big load off the brain of man.

Yet here is a machine in the Graton & Knight belting factory whose operation would be without value or purpose if it had to function unguided by a skilled operator.

The simple thing the man in the picture is doing is simple only as you look at it. He is sliding pieces of leather under a swiftly revolving knife that cuts the leather into strips.

This man must know leather. He must know what part of the animal each piece of leather comes from. He must know how wide a strip he can cut from each piece for every grade and belting purpose.



He has been trained to know these things by learning the Graton & Knight method, based on chemical and engineering studies of the characteristics of leather and the working conditions of transmission belting.

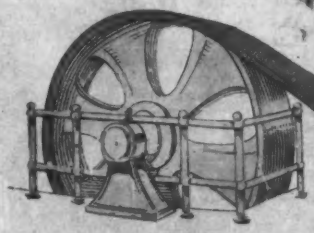
All through the Graton & Knight process you will find this exactness in control.

That's why Graton & Knight belts last longer.

Graton & Knight Company
Worcester, Mass.
Branch offices throughout the World

GRATON & KNIGHT
Standardized
LEATHER BELTING LASTS LONGER

The "STANDARDIZED BELTING MANUAL"
contains 170 pages of useful information about belting, how to use it, take care of it, and make it deliver the most for your money. Send for a copy.



GRATON & KNIGHT COMPANY,
Worcester, Mass. 101-E
Send me a copy of *"Standardized Belting Manual."*
Name .....
Company .....
Place .....
Prices equality for quality, 5 to 10% lower than the field.

GRATON KNIGHT

A corner of our extensive metallurgical laboratory, famous for its contributions to the art of making alloy steels.

America's Finest Laboratory Produced This Stainless Iron

IT is only natural that America's Finest Laboratory should have produced Agathon Enduro Stainless Iron, which refuses to rust, scale or corrode. This new metal is ideal for those metal parts of paper mill machinery in contact with liquids or subjected to excessive wear and abrasion. One of its main advantages for such use is the fact that it is not a coated material, but is the same all the way through. Thus it will resist indefinitely, rust, scaling or corrosion.

Agathon Enduro Stainless Iron is easily worked—it can be machined, forged or drawn—and yet possesses a hardness that resists wear and abrasion.

Our metallurgists will gladly assist you in the application of this remarkable metal to your product.

AGATHON ENDURO STAINLESS

Agathon Enduro Stainless can be—Spun, Forged, Welded, Riveted, Machined, Cold Worked.

Agathon Enduro Stainless resists—Abrasion, Alkali Solutions, Moist or Sea Air, Superheated Steam, Fruit and Vegetable Acids, and will not scale at High Temperatures.

Central Alloy Steel Corporation, Massillon, Ohio

World's Largest and Most Highly Specialized Alloy Steel Producers

Makers of Agathon Alloy Steels

Cleveland · Syracuse · San Francisco · Detroit · Philadelphia · Chicago · Los Angeles · New York · Tulsa · St. Louis · Seattle · Cincinnati

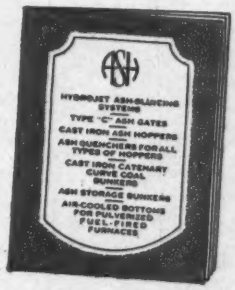
AGATHON ENDURO STAINLESS IRON

Entered as second class matter August 13, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. — ESTABLISHED 1872 — FIFTY-SIXTH YEAR — Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., E. Stroudsburg, Pa.
EXECUTIVE AND EDITORIAL OFFICES: 10 EAST 39th STREET, NEW YORK CITY. CHICAGO: 123 West Madison Street, Chicago, Ill.

Don't Neglect The Ash Basement In Your Mill Improvement Plans

Many paper mills would be astonished, were they to carefully check the actual cost of removing ashes from their power plants, and the maintenance cost of the equipment involved. To determine possibilities of reducing these costs, compare the conditions in your ash basement with those in the above photograph. Note the absence of leaking water, puddles on the floor, fog, smoke and spilled ashes. This "business-like" ash basement is equipped with A-S-H Cast Iron Ash Hoppers and Type "C" Water Collecting Ash Gates.

Antiquated, inefficient equipment in the machine room, beater room, etc., is rapidly being replaced in every progressive paper mill. Why not carry your modernization plans on to the ash basement of your power plant, for certainly inadequate or poorly designed ash handling equipment is not conducive to economical ash handling or satisfied labor.


ASH
HYDROJET ASH-SLUICING SYSTEMS
TYPE "C" ASH GATES
CAST IRON ASH HOPPERS
ASH QUENCHERS FOR ALL TYPES OF HOPPERS
CAST IRON CATENARY CURVE COAL BUNKERS
ASH STORAGE BUNKERS
AIR-COOLED BOTTOMS FOR PULVERIZED FUEL-FIRED FURNACES

Write for Catalog

Individual catalogs, describing any of the products listed above will gladly be sent on request,—no obligation.

The ALLEN-SHERMAN-HOFF Co.

233 SOUTH 15th. STREET - PHILADELPHIA

In Canada: Allen-Sherman-Hoff, Ltd., 705 Southam Bldg., Montreal, Que.

Mill Executives who take the time to look into the claims made for Dayton High Speed Beaters almost invariably end by installing Dayton High Speed Beaters.

DAYTON High Speed Beater equipment is in use in well on to 70 mills.

The mills that make up this list produce almost all the different kinds of paper being manufactured, proving that the usefulness of Daytons is general, and by no means confined to a few certain types of mills.

That Dayton High Speed Beaters are highly successful in these many mills is borne out by the many orders that come in for additional Dayton equipment after the initial installation has been in use a little while.

That Dayton High Speed Beaters would give a good account of themselves in your mill must stand unquestioned in light of their successful performance in other mills making a product like, or similar to, the product made in your own plant.

The Dayton proposition merits your investigation.

The Dayton Beater & Hoist Co.
DAYTON, OHIO
E. K. Mansfield & Co., 501 5th Ave.,
New York, N. Y.

Dayton
-high-

1 Very much heavier furnishes handled

2 Furnishes beaten in far less time

3 Production materially increased

4 More uniform and and better product

5 Power bills sharply reduced

6 Highly important savings in labor

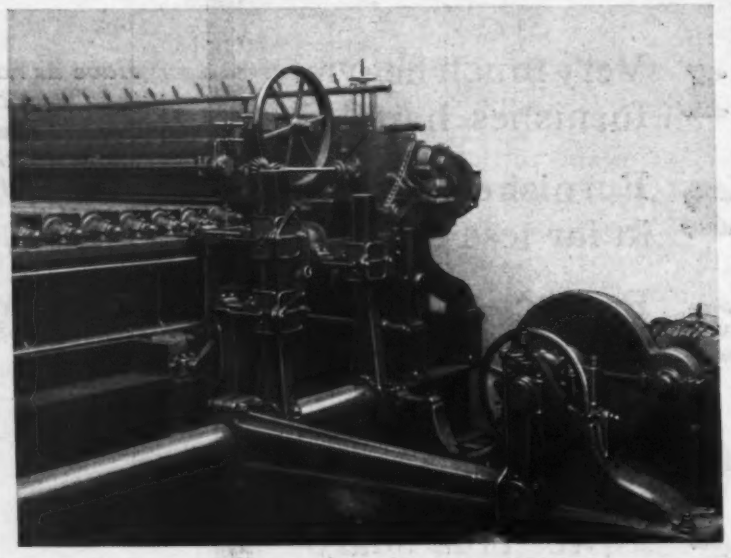
Investigation will prove the absolute soundness of the above claims. You owe it to yourself to make such an investigation as soon as possible.

The Dayton Beater & Hoist Co.
DAYTON, OHIO

E. K. Mansfield & Co., 501 5th Ave.,
New York, N. Y.

Have us name the mills that use Dayton High Speed Beaters so you can write the executives of some of these mills for their confidential opinion of their Daytons. Also write us for data on various installations in which you are interested.

Beaters
-speed-



Speed and Efficiency

Old Equipment—the danger sign today—cannot keep pace with modern requirements. The long list of Beloit High Speed Shake and Removable Fourdrinier users is the most convincing evidence that *modern* equipment is by far the most profitable.

The "Beloit" is a unit of amazing speed and efficiency. It gives you big production, better sheets; it saves time and labor. Request full information today.

5 ADVANTAGES of the "BELOIT"

1. A shake that absolutely can be depended upon to perform reliably.

2. A shake applicable to higher speeds and wider machines.

3. A special type of Fourdrinier to go with such a shake.

4. A convenient, easy means of applying the shake where it is needed.

5. A shake that is adjustable both as to speed, throw and pitch of wire while machine is running.

The illustration above shows the shake head and shake mechanism of the 'Beloit" machine. An illustrated, descriptive bulletin giving more details will be sent gladly upon receipt of your request.

Beloit Iron Works — **Beloit, Wis., U.S.A.**

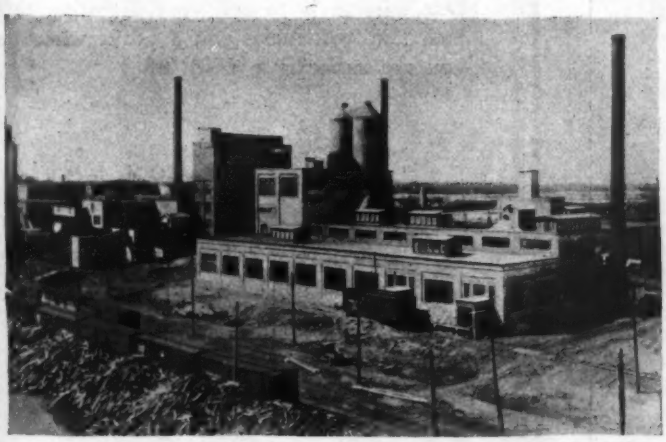
Since 1858 Builders of Paper, Board Mill and Container Plant Machinery

DORRCO

What the Dorr System of Continuous Recausticizing Means to Soda Pulp and Kraft Mills

Uniformity of operation
All materials handled mechanically
Reduced labor charges
Low upkeep costs
Small floor space requirements
An installation of equipment of proved performance.

Drop the attached coupon in the mail and we will gladly send you detailed information.



Plant of the Canadian Cellulose Company, Cornwall, Ont. This modern plant is operating Dorr Equipment in the continuous recausticizing operation.

I am interested in Continuous Causticizing for Soda Pulp Mill / Sulphate Mill
Name
Street
City
State or Province

THE DORR COMPANY

ENGINEERS

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JOPLIN 319 Joplin National Bank Bldg.
SOC. DORR et CIE 126 Rue de Provence Paris 8

INVESTIGATION TESTS DESIGN EQUIPMENT

Dependable Protection AT A Minimum Per Year Cost

A few facts about "Wolmanized" Lumber

1. The characteristics of the wood remain unchanged.
2. The preservative "stays put" due to unusual fixation qualities.
3. A lower-cost lumber may oftentimes be specified.
4. Can be painted, varnished or stained.
5. Fire-retardent.
6. No discoloration that affects painting.
7. Treating operation flexible according to individual requirements.

What is the true cost of a roof? Cheap roofing is expensive at any price. When you consider roof service on an annual basis the first cost is hardly worth consideration in view of the really little difference in first cost.

QUALITY VS. PRICE

Our Wolmanized Roof Planks are not produced to meet low prices, but with the idea in mind to give the wood the best possible protection against decay.

For years and years mill owners and construction engineers have accepted as fact that roof lumber will decay. By using Wolmanized Roof Planks, you remove the objection of using wood as roof materials.

When you buy Wolmanized Roof planks you buy what? Insurance against decay—Protection.

We are building a business on one product—Wolmanized Lumber and it would be suicide for us to offer for sale anything but the very best obtainable product.

Our mission is to call your attention to the idea that will make you a profit where now you are suffering a dead loss.

Samples furnished if desired.

AMERICAN WOLMANIZED LUMBER COMPANY
7 So. Front St., Elizabeth, N. J.

"WOLMANIZED LUMBER *Does Not Decay"*

Nortex

The Northland Bus Company
uses Envelopes of Nortex Stock

A PROFITABLE new field for progressive envelope manufacturers was opened when NORTEX achieved the remarkable combination of Kraft strength and Ivory-white color.

Thousands of companies everywhere, big and small alike, now demand envelopes of distinctive appearance which can also do "extra heavy duty". Like Northland, they realize the value added to their booklets and catalogs when sent in envelopes of NORTEX stock. Its quality appearance assures a reading for the enclosure, its extra strength makes delivery in first class condition certain.

A simple test of the strength, texture, finish and printing possibilities of NORTEX will demonstrate that there are many profitable outlets in your territory for this remarkable new paper. NORTEX has all the qualities to give you leadership in this new field and our representative can tell you the profitable story. Write or call any of the sales offices listed below.

NORTEX is furnished in White, Buff and Manila, and may be had in other colors on special order.

The NORTHWEST *Paper Co.*
Cloquet Minnesota

SALES OFFICES
CHICAGO · 537 S · DEARBORN ST.
SAINT PAUL · 914 MERCHANTS NAT · BK · BLDG.
SAINT LOUIS · 614 BUDER BUILDING
NEW YORK · 101 PARK AVE.

The Hinde & Dauch Paper Co. of Canada, Limited

MANUFACTURERS OF

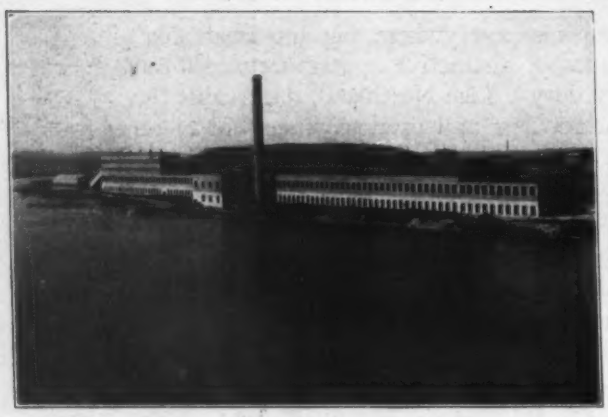
CORRUGATED BOXES, FIBRE BOXES, WALL BOARD, MILL BOARD
CORRUGATED PAPER AND BOX BOARDS.

THE LARGEST MANUFACTURERS OF THESE LINES IN CANADA

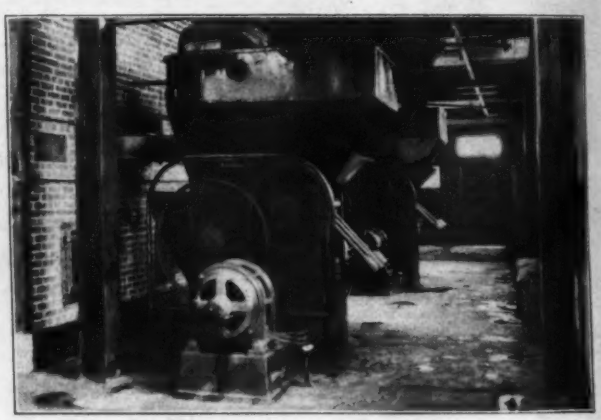
USE

UNIPULVO SYSTEM

In their new Mill at Trenton, Ont.



General View of Mill



Interior View—Boiler Room

The pulverizers illustrated in above photograph were manufactured and installed by The Strong-Scott Mfg. Co. Other UNIPULVO installations in allied industries, have been or are being made for B. F. Nelson Mfg. Co., Minneapolis (2); Bird & Son, Chicago (2); DePere Paper Mfg. Co., West DePere, Wis. (1); M. & O. Paper Co., International Falls. Minn. (6); and Backus-Brooks Co., Ft. William, Ont. (4)

THERE IS A UNIPULVO FOR PRACTICALLY EVERY BOILER—150 H.P. AND UP

The Strong-Scott Mfg. Co.

MINNEAPOLIS, MINNESOTA

IN CANADA:

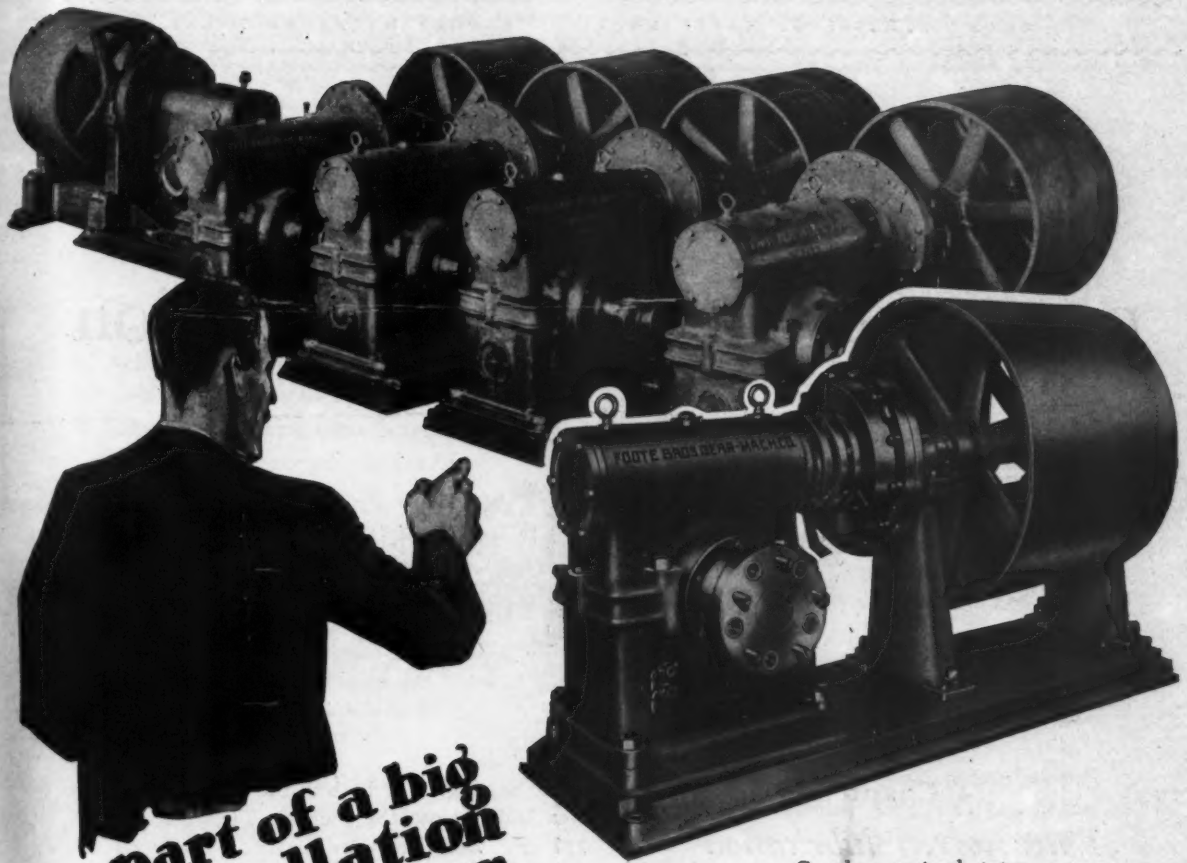
THE STRONG-SCOTT MFG. CO., LTD.

WINNIPEG

TORONTO—50 Front St. East

DISTRICT OFFICES

BOSTON, Chamber of Com'ce
NEW YORK, 342 Madison Av.
PHILA., Mach'y Sales, Bourse
BUFFALO, Prudential Bldg.
CLEVELAND, National Bldg.
DETROIT, Donovan Bldg.
CHICAGO, Monadnock Bldg.
GRAND RAPIDS, Michigan Trust Bldg.
ST. LOUIS, Syndicate Trust
PITTSBURGH, Bessemer Bldg.
KANSAS CITY, Sterling Bldg.



part of a big installation for the Paper Industry

Established 1885

Complete sectional paper machine drive units including IXL Hygrade Worm Anti-Friction Bearing Reducer — magnetic clutch and taper pulley — all mounted on combination bed plate supplied to one of the world's largest box board mills.

Established 1895

We Manufacture

- Cut Gears of all Kinds
- Micarta Pinions
- Micarta Timing Gears
- Flexible Couplings
- Gear Racks
- Speed Reducers
- Special Machinery

Send for 621 page hand Book "Gear Problems"

FOR SOLVING your power transmission problems we offer the advice and assistance our engineering department has gained by over forty years experience in gear and speed reducer manufacture. We specialize in modern high speed paper machine drives.

A. N.—198

FOOTE BROS. GEAR & MACHINE CO.
219-229 N. Curtis St.
CHICAGO, ILL.

Please send me without obligation a copy of IXL Hygrade Worm Reducer Data Book.

Signed_____

Address_____

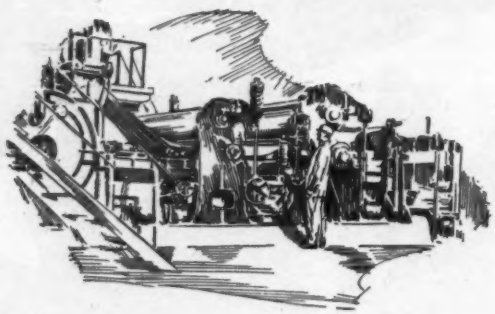
FOOTE BROS. GEAR & MACHINE CO.

219 No. Curtis St., Chicago

Sales Offices in all Principal Cities U. S. A. and Canada

Send for Catalog No. 300

How four familiar troubles were overcome by Correct Lubrication



⋆ Chapter I ⋆

Enter correct lubrication . . . Exit trouble

A large Middle West paper mill recently had the pleasure of showing certain of its troubles the door marked "Exit." This was done with the cooperation of the Vacuum Oil Company. Correct Gargoyle Lubricating Oils were recommended throughout the plant after a careful analysis of operating conditions.

The elimination of troubles at four points—Beaters, Tube Rolls, Dryer Rolls and Calenders—is typical of results accomplished by the use of these high-grade, uniform oils throughout the mill's two plants.

⋆ Chapter II ⋆

Lower temperatures on beater bearings

Beaters formerly lubricated with grease registered temperatures of 204°F, 226°F, and 228°F.

A "true comparison" temperature test was made. The grease cup was removed from the outer bearing. The bulb of the thermometer was laid against the journal: Temperature, 212° F. Bearings were cleaned. Gargoyle D.T.E. Oil Extra Heavy was installed and a similar test was made. After being in operation 12 hours temperature was 144° F. A 68° F. reduction. Journals were bright and in good condition.

⋆ Chapter III ⋆

Freer turning tube rolls . . .

Tube rolls, ball bearing type—formerly lubricated with grease. Wet bearings were subject to water splash. Rolls frequently found idle. This caused a heavy drag on the wire and resulted in flat spots on the rolls.

Voco Ball Bearing Grease Medium was installed. The drip pans from the guide wheels above the tube rolls were arranged so as to cause water to drip between the bearings instead of directly on them.

A few months later inspection showed ***all rolls turning freely***. This indicated a minimum amount of wear and friction on both the rolls and the wire.

⋆ Chapter IV ⋆

No bearing troubles on dryer journals

60 dryers—formerly lubricated with grease.

30 brasses replaced in year and half.

Cost $4.75 each—Total $142.50

Labor for replacing these brasses—$285.

Total cost of replacements $427.50

Ten days after Gargoyle D.T.E. Oil Extra Heavy was installed journals showed ample oil, well distributed, and during two-and-a-half years' use of this oil in the dryer bearings ***not one bearing was replaced.***

At one time the mill was closed two months. When started up ***not a single bearing gave trouble from excess heating.***

⋆ Chapter V ⋆

Power decreased 18.4% . . .

A record of speed readings was made before and after dryer roll bearings were lubricated with Gargoyle D.T.E. Oil Extra Heavy. Readings showed:—

DATE	AMPERES	SPEED	LUBRICANT	CONDITIONS OF JOURNALS
With grease then in use				
June 1923	600-675	270	Grease	Dark
With Gargoyle lubricants in use				
June 1923	650-675	270	Gargoyle D.T.E. Ex. Heavy	Dark
July 1923	575	250	"	Brighter
July 1923	550	250	"	Bright
Sept. 1924		280	"	Bright
Feb. 1925		300	"	Bright
Aug. 1925 (A blower added to lower roll of calender stack)				
Aug. 1926	510	335	"	Bright

The speed increase from 270 R.P.M. in 1923 to 335 R.P.M. in 1926 was due to manipulation and improved methods of handling.

The power saving of 18.4% shown by the readings would be still greater if adjusted for equal speed conditions.

Latest report on Dryer Bearings "Lubrication very satisfactory."

⋆ Chapter VI ⋆

Calenders . . .

With lubricant formerly used, paper dust and foreign matter was getting into the bearings and interfering with oil spread. The lower roll bearing heated.

A change was made in method of application, and Gargoyle Lubricating Oil installed. No further trouble was experienced. Very little oil waste. Clean floors.

Later reports on oil consumption showed 75 gallons per month. This is 13 gallons less per month than consumption of oil previously used.

A good example to follow . . .

LUBRICATION difficulties crop up in the best equipped paper mills. These difficulties are fewest in the ***best lubricated mills.*** For many years the Vacuum Oil Company has cooperated with pulp and paper mill engineers in locating and eliminating all trouble traceable to faulty lubrication. Our specialized knowledge of correct lubrication for your industry is at your disposal.

NOTE: We will gladly send you, without charge, our authoritative treatises: "Pulp and Paper Mill Lubrication" and "Bottle Oilers." Write for your copies.

Vacuum Oil Company

Headquarters: 61 BROADWAY, NEW YORK

Branches and distributing warehouses throughout the country

Lubricating Oils

A grade for each type of service

NET PROFITS!

ARE YOURS SATISFACTORY?

Most concerns in the Paper Industry are finding that the constantly diminishing margin between Sales and Cost of Sales is a matter to be considered seriously.

"The essence of business success is not to make good goods. It is not to have large sales. It is not to have a host of employes. It is TO HAVE SOMETHING LEFT. The biggest word in the language of business is not gross, but NET.

"TO INCREASE THE NET PROFITS—that is the one aim of Efficiency. Do this, and bulk will take care of itself."

HERBERT CASSON.

Have you reduced that Cost of Sales as far as is practicable?

Do you realize that, if your average Net Profit is 10% of Sales, a reduction of $10,000.00 in Cost is as good as an increase of $100,000.00 in Sales as far as Net Profits are concerned?

Our Business is to help Clients increase Net Profits by cutting Costs.

We do this in Paper and Pulp Mills by centering our efforts on Labor Cost Reduction and the Elimination of Waste.

The main points of attack are, Finishing Rooms, Shipping Rooms, Wet Rooms, Wood Rooms, Yard and Maintenance.

Our policy is to be practical and to keep in mind always the ultimate goal to SAVE MONEY FOR CLIENTS.

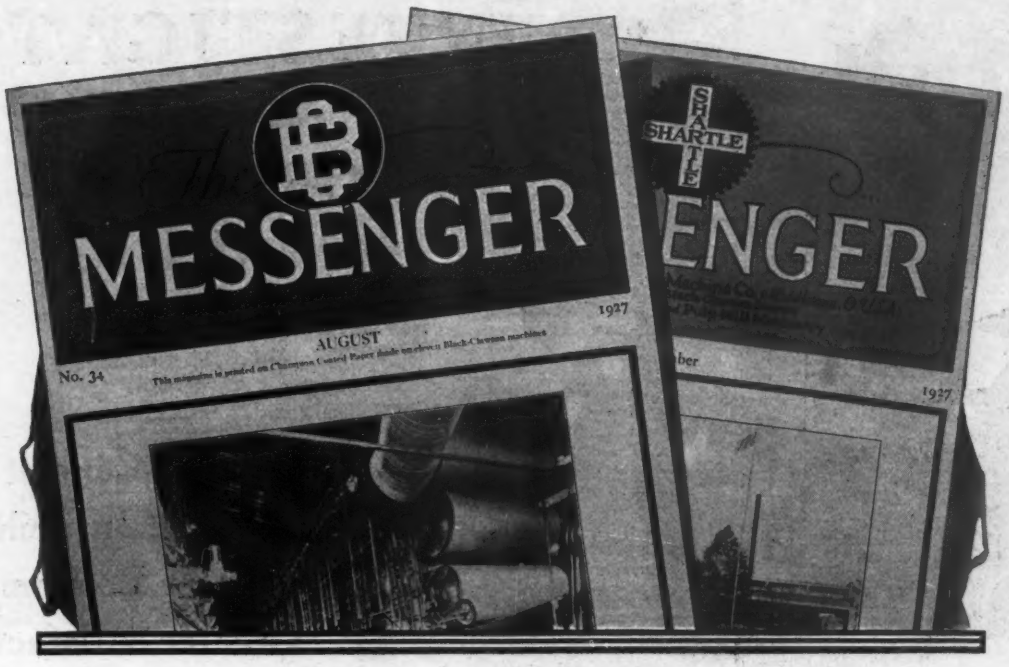
We work with the local staff harmoniously.
We do not steal credit; we share it.

Every Pulp and Paper Mill should be interested in this messgae. Send for booklet "Making a Profit."

L. V. ESTES Incorporated

INDUSTRIAL ENGINEERS

4753 BROADWAY CHICAGO, ILL.



Are you receiving these?

If not, send us your name. We want every mill executive, everyone who is in the least interested in paper making machinery to receive the Messenger.

The Messenger is a newsy, informative house organ of eight pages published every month—one month by The Black-Clawson Company and the alternative month by the Shartle Brothers Machine Company, Division of The Black-Clawson Company.

It doesn't try to sell you anything but does try to give you interesting, helpful information about new developments in paper making equipment. Some months it describes how other mills are solving their problems. And in the "Briefs Column" it tells what's doing in the industry.

All in all, we believe it's a little booklet worth while—and it takes only a few minutes a month to read it. So send us your name and address. There is no obligation whatever connected with receiving the Messenger.

THE BLACK-CLAWSON COMPANY
HAMILTON, OHIO

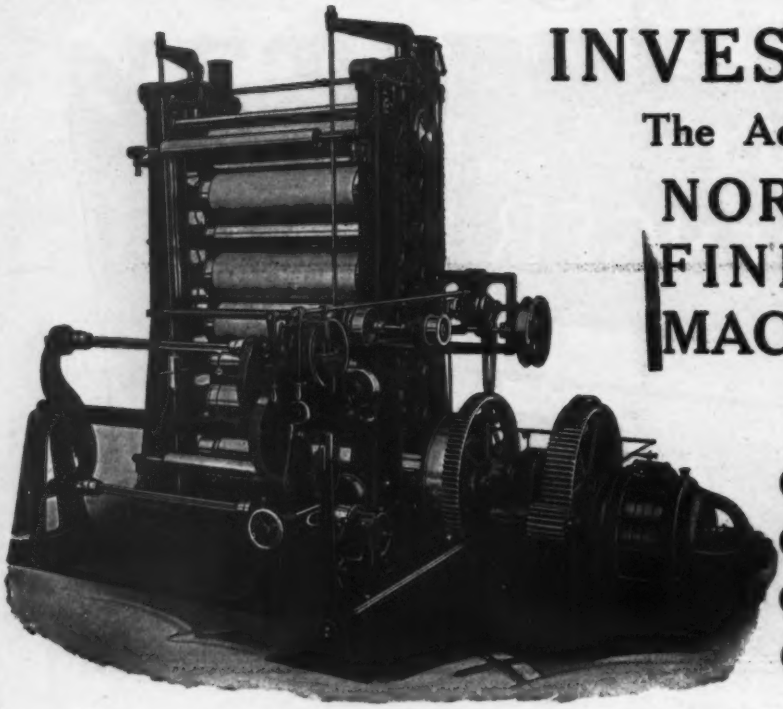
Export Offices: 15 Park Row, New York City

Builders of highest quality pulp and paper mill machinery. Patentees and sole builders of Vertical Dryers and Champion Fourdriniers.

BLACK-CLAWSON

PAPER MAKING MACHINERY

Built with Machine-Tool Accuracy



INVESTIGATE

The Advantages of NORWOOD FINISHING MACHINERY

Greater Capacity
Greater Durability
Greater Economy
Greater Satisfaction

YOU'LL FIND it profitable to thoroughly investigate the advantages of Norwood Finishing Machinery. Take Norwood Super-Calenders for instance—and particularly notice their common sense features and exclusive advantages.

Notice that the frame uprights have tee slots the entire height, so you can fasten platform brackets and other calender attachments at any height. Consider the important time saving advantages of being able to remove any roll without removing the calender caps. Make a mental note of the added durability assured by a practical continuous oiling system. Take into consideration the value of the compound lever type pressure device and the power operated revolving reel which is controlled by a three push button station conveniently located for the operator.

These are a few of the many important advantages and improvements to be found in Norwood Super-Calenders. They are typical of the advanced engineering developments to be found in all of Norwood's machines and equipment.

Before You Make A Final Decision On New Equipment Investigate the Advantages Of

NORWOOD

Super-Calenders
Glassine-Calenders
Breaker Calenders
Sheet Calenders
Platers
Dusters
Brushing Engines
Rag Thrashers
Folding Machines
Suction Boxes
Filters

It will pay you to write us for full specifications, illustrations and prices on any paper mill equipment in which you are interested.

NORWOOD ENGINEERING COMPANY
FLORENCE, MASS.

NORWOOD

Pygmies
that Control the Giants

Practical paper making machinery reduced to laboratory size. Beaters with a capacity of as little as three quarters of a pound of stock. Miniature stuff chests that store and agitate stock perfectly. Baby Jordans that refine as effectively as their big brothers. Rotary steam dryers that dry hand samples quickly. Pounds of stock, instead of tons, to work with.

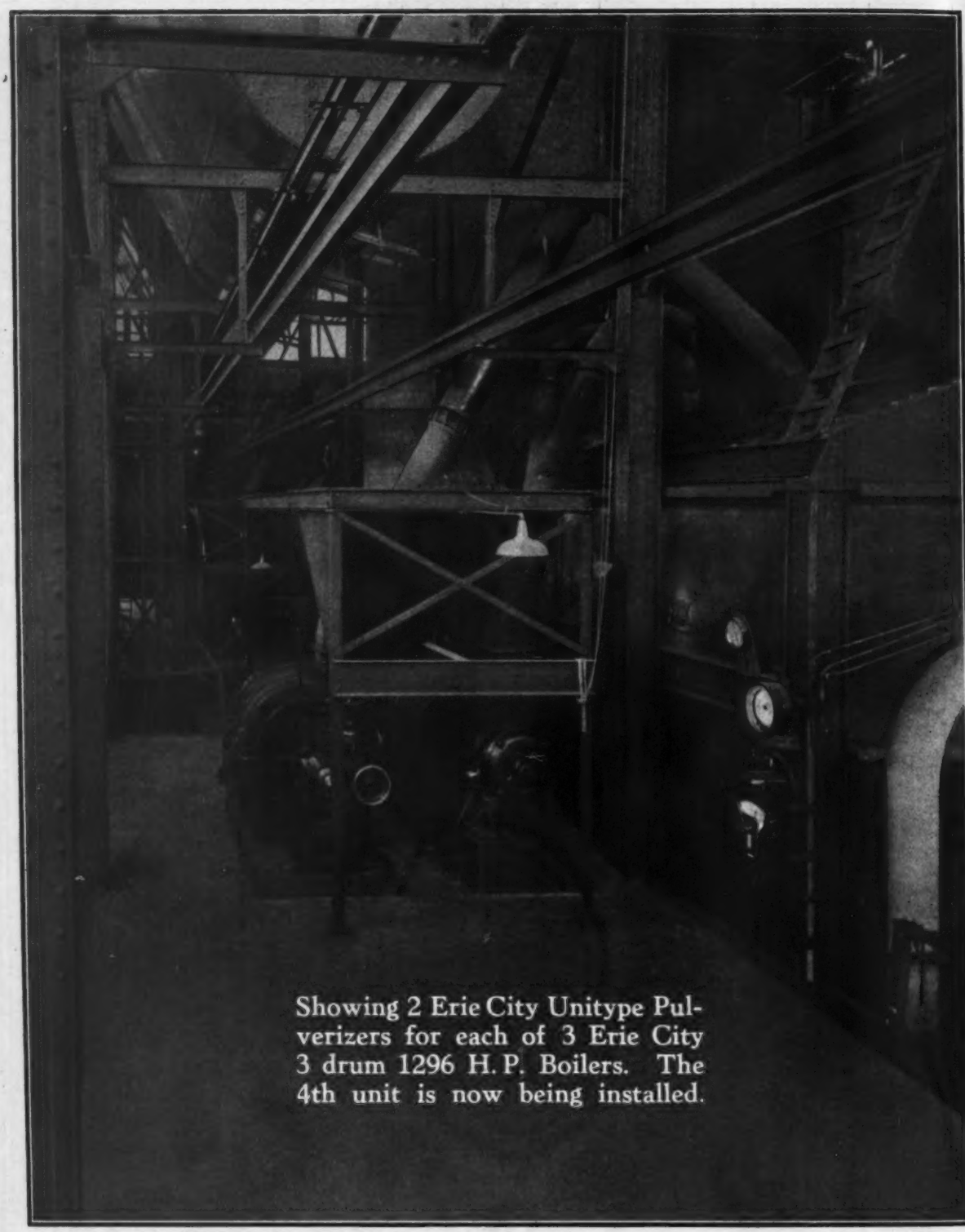
The modern tendency is to let laboratory tests control production. With this small scale Noble & Wood equipment you can test, experiment and develop plant processes and output with reasonable certainty and lowest expense.

Changes in processes resulting from laboratory tests can be made in the mill with a definite foreknowledge of results.

We keep a constant stock of this laboratory equipment so that prompt shipment can be made.

Investigate this modern system of plant control. Our engineers will gladly give you full details and advice.

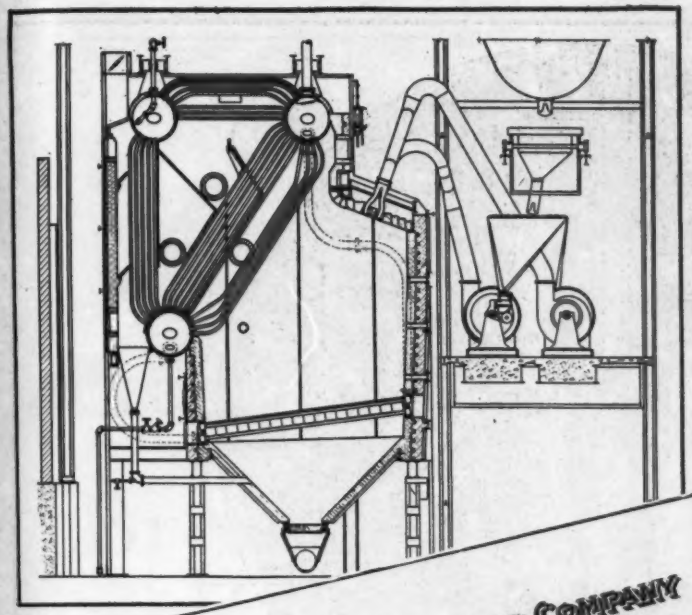
NOBLE & WOOD
MACHINE COMPANY
Hoosick Falls New York



Showing 2 Erie City Unitype Pulverizers for each of 3 Erie City 3 drum 1296 H. P. Boilers. The 4th unit is now being installed.

Pulverized Fuel Apparatus.
3-Drum Inclined Water Tube Boilers.
Water Cooled Furnaces.
Vertical Bent Tube Waste Heat Boilers.
Horizontal, Long and Cross Drum Boilers.

ERIE CITY
ERIE,



"an average efficiency of 82%"

RIVER RAISIN PAPER COMPANY

FIBRE BOARDS
CORRUGATING STRAW

WORLD'S LARGEST MANUFACTURERS OF
SOLID FIBRE AND CORRUGATED SHIPPING CASES

MONROE, MICHIGAN

May 9th, 1927

The Columbia Mills,
225 Fifth Ave.,
New York, N. Y.

Attention Mr. E. Myers

Gentlemen:-

Yours of the 16th at hand and wish to say we have contracted for three 1296 H. P. Erie City Three-drum bent tube Boilers, we have at present two of these Boilers operating at about 200% of rating, the first was put in service June 1st 1926, the third will be started about June December 6th 1926, the second was started about June 15th 1927. The performance of these Boilers is very good. We are getting an average efficiency of 82%. We are using Erie City Pulverizers, two for each Boiler, and the maintenance is very low, much less than Stokers. We expect to purchase the fourth Boiler within a year and it will be an exact duplicate of the first three. Would be pleased to show you these Boilers in operation if you are out this way at any time or give you any further information if you should so desire, as we are very well satisfied with them.

Very truly yours,
River Raisin Paper Co.
Frank Miller
Chief Engineer

GM/WS

IRON WORKS
PENN'A, U.S.A.

Horizontal Return Tubular Boilers.
The "Economic" Boiler.
Vertical Fire Box Boilers.
Steam Engines (High and Low Speed).
Steel Plate Construction.

TRUE DIAMETER+SMOOTH INSIDE= LESS FRICTIONAL RESISTANCE

Naylor Spiral Lock-Seam Pipe is true in diameter, *because it is wound on a lathe turned arbor to exact dimensions,* and has a smooth inside, with no seams or rivets to obstruct the flow of material.

It offers the lowest frictional resistance of any light weight steel pipe.

It reduces, to a minimum, capillary attraction and clogging due to slime.

It effects worth while economies in power, and allows for greater volume in a given space.

It is lowest in transporting, erecting, operating and maintenance cost. Ideal for all conveyance, exhaust steam, and water supply lines.

It is made in all sizes from 4" to 30" in diameter, black, galvanized and asphalt dipped.

It is furnished with standard A. S. M. E. fittings, R. P. M. fittings, or bolted joints.

It is available in standard sizes for immediate shipment from stock.

It is truly a paper mill pipe, as witnessed by its use in more than ninety of the country's leading paper mills.

Our Engineering Department will be glad to render you any service in regard to the application of Naylor Pipe to your mill. Send for a sample—it implies no obligation.

NAYLOR SPIRAL PIPE COMPANY

Main Office and Plant 1224 East 92nd Street, Chicago.

SALES OFFICES

NEW YORK, 26 Cortlandt Street
CLEVELAND, 1367 East 6th Street
PHILADELPHIA, Weatherspoon Bldg.
DETROIT, 1500 Cadillac Sq. Bldg
CHARLOTTE, N. C., Realty Building
KANSAS CITY, 1005 Davidson Bldg.
DENVER, COL.; SALT LAKE, UTAH; EL PASO, TEX. — Mine and Smelter Supply Co.
OMAHA, NEB. — Interstate Machinery and Supply Company.
MONTREAL, CANADA. — Mechanical Equipment Company, 807 New Birks Building.

Naylor Spiral Lock-Seam Pipe

Which Bronze —— or —— Steel JORDAN KNIVES

The above photos of Hy-ten-sl Bronze and Steel Knives (in Service the same length of time) graphically and impressively ANSWER THE QUESTION.

Every Mill Superintendent is aware of the fact that "Corrosion and Erosion" shorten the life of "Steel Jordan Knives." They are also aware that "Discoloration of Stock and Injury to Felts" (from the resulting "rust") are ever present handicaps not to be minimized.

Following are the ADVANTAGES of HY-TEN-SL BRONZE JORDAN KNIVES over Steel Knives:

1.—**Longer Operation,** without the necessary expense of replacement.

2.—**No Discoloration of Stock** therefore less rejections.

3.—**Less Imperfections in Stock** thru freedom from rust spots.

4.—**Strength of Paper Increased** by the square edge which can be maintained on Bronze Bars, whereas Steel Bars erode and become thin and rounded.

5.—**Felts Not Injured** from particles of rust.

6.—**No Erosion** to any extent while steel is subject to rapid erosion.

P. S. One mill reports a Saving of $2000 in one year from the use of Hy-ten-sl Bronze Jordan Knives. Other impressive testimonials are contained in our NEW JORDAN KNIFE PAMPHLET.

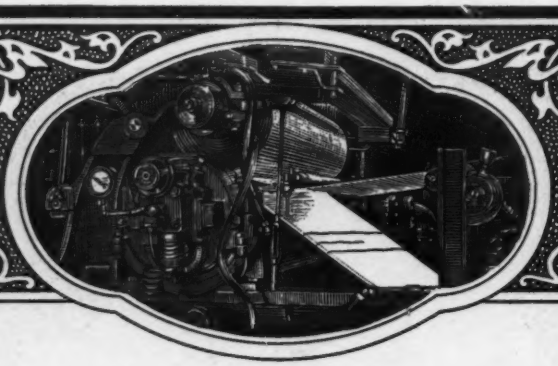
Ask for our New Pamphlet

AMERICAN MANGANESE BRONZE CO.

Founders and Metallurgical Engineers

Holmesburg—Philadelphia

Pittsburgh **Cleveland** **New Orleans** **New York**



Here is everything you want in a felt

STRENGTH, water removing qualities, and long life—those three points include every element a good paper making felt ought to have.

And you get them to their fullest extent in Hamilton Felts.

You'll find that Hamilton Felts run longer with less down time for washing. They take out more water so that there is less sweating to be done in the dryers. They deliver a stronger sheet to the dryers so that there is less broke and fewer imperfect sheets to be sold as scrap or seconds.

That's because Hamilton Felts are built of experience—three generations of it devoted solely to the manufacture of paper making felts.

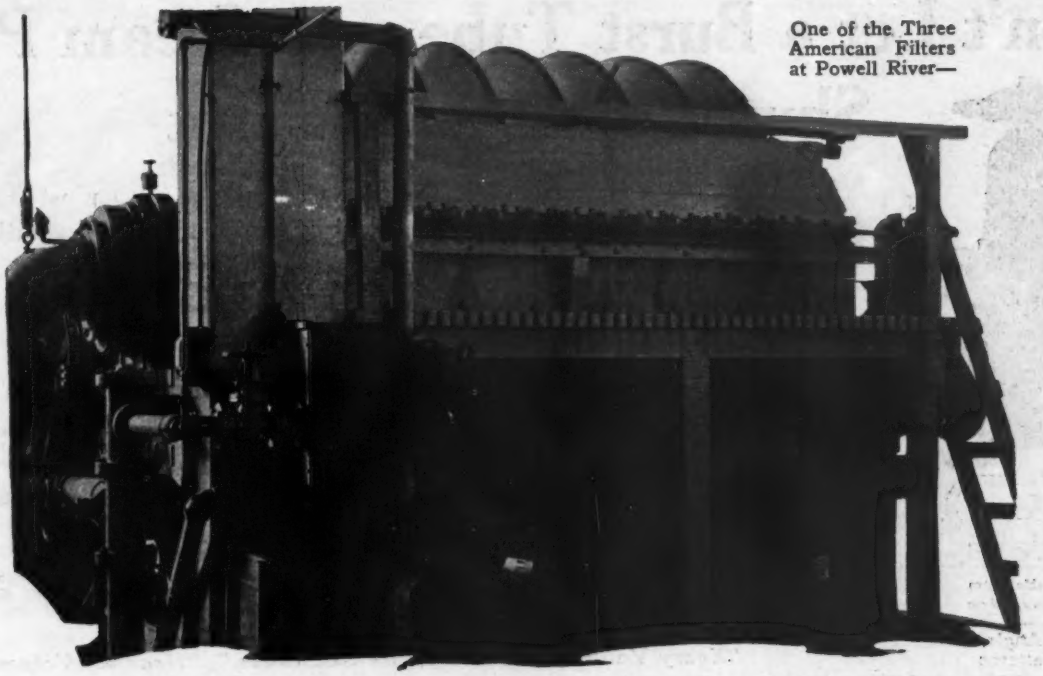
Try a Hamilton the next time you need a felt. It only takes that single trial to convince yourself that there are felts and felts—that the Hamilton is the one you want to use.

Ask the Hamilton Felt man who calls on you. He's a practical felt man and will give you felts that suit your individual needs.

Shuler & Benninghofen, Hamilton, Ohio

Miami Woolen Mills - Founded 1858.

Hamilton Felts



One of the Three American Filters at Powell River—

NOW
Almost Negligible Stock Losses At Powell River

IN a recent article in Pacific Pulp and Paper Industry describing the new Powell River Mill, there is this statement:

> "As a result of using these three filters, the stock loss to sewer from news machine white water and sulphite white water is reduced to an almost negligible figure."

The filters referred to are 9' diameter—8 disc American Filters—two being used as save-alls, one as a sulphite decker or thickener.

Preventing stock losses from two 120 ton machines and from the sulphite decker or thickener means larger tangible savings in dollars and cents. It also means improved operations all along the line.

Again the value of the American Filter in paper mills is emphasized.

Some of the other mills equipped with American Filters.

Price Bros. Co. Ltd.
Brompton Pulp & Paper Co.
Miami Paper Co.
Consolidated Water Power & Paper Co.
Minn. & Ontario Paper Co.
St. Maurice Valley Paper Corp.
Escanaba Paper Co.
Abitibi Power & Paper Co.

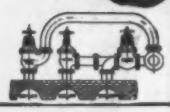
UNITED FILTERS CORPORATION

Main Office and Laboratory: Hazleton, Pennsylvania

New York Los Angeles Chicago Salt Lake City

Export Office: 25 Broadway, New York City *Code Address: Unifilter, New York*

Don't Let a Burst Tube or a Steam Pipe Shut Down Your Plant



Double Extra Heavy Valves

Elbow Angle Globe Patterns

"No Shutdown when a tube ruptures"

"No Explosion when a pipe bursts"

You can safeguard your Central Station against the consequences of either accident by equipping all boiler outlets with

Golden-Anderson

Patent Automatic Double-Cushioned

Triple-Acting and also Non-Return Valves

1. Automatically cut out the boiler the instant that a tube ruptures or other internal break occurs.
2. Automatically cut off the steam flow from every boiler the instant that a steam pipe breaks.
3. Automatically equalize the pressure between all boilers.
4. Automatically cut in a boiler, making accidents due to inaccurate steam gauge impossible.
5. Positively prevent back flow of steam into a cold boiler.
6. Can be closed by hand, like ordinary stop valve, and arranged with combination feature to open valve like regular gate and globe valve.
7. The only valves that can be tested in service from boiler room floor.
8. Double Corliss Dash Pot that cushions in opening and closing.
9. Cannot pound, spin, stick, or chatter.
10. By disconnecting pilot valve; the triple acting style can be changed into plain non-return.

"Every Valve with an Absolute Guarantee." "Heaviest Valves Made"

The Big Steel Companies Take no chance on safety—

"4575"

Golden-Anderson

Pat. Automatic Double-Cushioned Triple-Acting; and also Non-Return Valves

PROTECT THEIR PLANTS

The Big Paper Companies Who take no chance on Safety—

International Paper Co.
West Va. Pulp & Paper Co.
Minn. & Ontario Paper Co.
Champion Coated Paper Co.
Finch Pruyn & Co.
Eastern Mfg. Co.
Crystal Tissue Co.
Halltown Paper Board Co.
Beckett Paper Co.

GOLDEN-ANDERSON

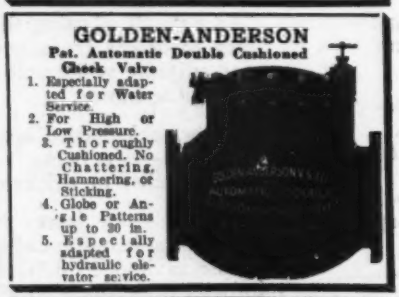
Pat. Automatic Cushioned Controlling Float Valve

1. Automatically maintains uniform level in heaters, tanks, etc.
2. Air and water cushioned.
3. No metal-to-metal seats.
4. No waste of water.
5. No water hammer or shock.
6. Angle or Globe patterns to 24 in.

GOLDEN-ANDERSON

Pat. Cushioned Automatic Controlling Altitude Valves

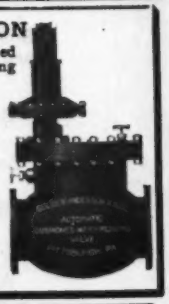
1. Automatically Maintain Uniform Water Levels in Tanks, Standpipes, Reservoirs, etc.
2. For High or Low Pressure. Always Dependable.
3. No Floats or Fixtures used.
4. No Water Hammer or Shocks.
5. Sizes up to 24 in.



GOLDEN-ANDERSON

Pat. Automatic Double Cushioned Check Valve

1. Especially adapted for Water Service.
2. For High or Low Pressure.
3. Thoroughly Cushioned. No Chattering, Hammering, or Sticking.
4. Globe or Angle Patterns up to 30 in.
5. Especially adapted for hydraulic elevator service.



GOLDEN-ANDERSON

Pat. Automatic Cushioned Water Pressure Regulating Valves

1. Maintain a constant reduced pressure regardless of fluctuations on high pressure side.
2. Perfectly Cushioned by water and air. No metal-to-metal seats.
3. The best valve made for maintaining a constant low pressure where consumption is continuous.
4. Operates quickly or slowly as required—No attention necessary.
5. Positively no hammering or sticking. Sizes to 24 in.

GOLDEN-ANDERSON

Pat. Automatic Cushioned Steam Pressure Reducing Valves

1. Maintain a constant reduced pressure.
2. Thoroughly cushioned.
3. No hammering, chattering or sticking.
4. No auxiliary valves or small by-passes to clog up.
5. No wire drawing.
6. Only one adjustment from the outside.
7. Double extra heavy throughout—practically indestructible.

GOLDEN-ANDERSON

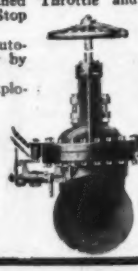
Pat. Automatic Cushioned Water Float Valves

1. Automatically Maintain Uniform Water Levels in Tanks, Standpipes, etc.
2. Instantly Adjusted to Operate Quickly or Slowly.
3. Floats Swivel to any Angle—Most satisfactory Float Valves Known.
4. No Metal-to-Metal Seats—No Water Hammer or Shock.
5. Cushioned by Water and Air.

GOLDEN-ANDERSON

Pat. Cushioned Combined Throttle and Automatic Engine Stop Valves

1. Operate 3 ways: Automatically, by Hand, or by Electric Switch.
2. Prevent Fly-wheel Explosions.
3. "Double Corliss" Cushioned—No Pounding or Sticking.
4. Contains No Tight Fitting Parts.
5. Furnished in Angle and Globe Patterns for high or low pressures.
6. "Always Ready for Service."



"Hosts of References"

Golden-Anderson Valve Specialty Co., 1241 Fulton Bldg., Pittsburgh, Pa.

Let us tell you about this digester!

Whether it be Sulphite Digesters, Globe Rotary Digesters, Cylindrical Rotary Digesters, Riveted Soda & Sulphate Digesters, or Experimental Digesters—they are constructed with the same painstaking care and precision known only to successful veteran manufacturers.

In the construction of Sulphite Digesters special care of shaping and fitting plates is required, otherwise the shell joints will work or change shape under pressure and thereby crack the lining and cause leakage.

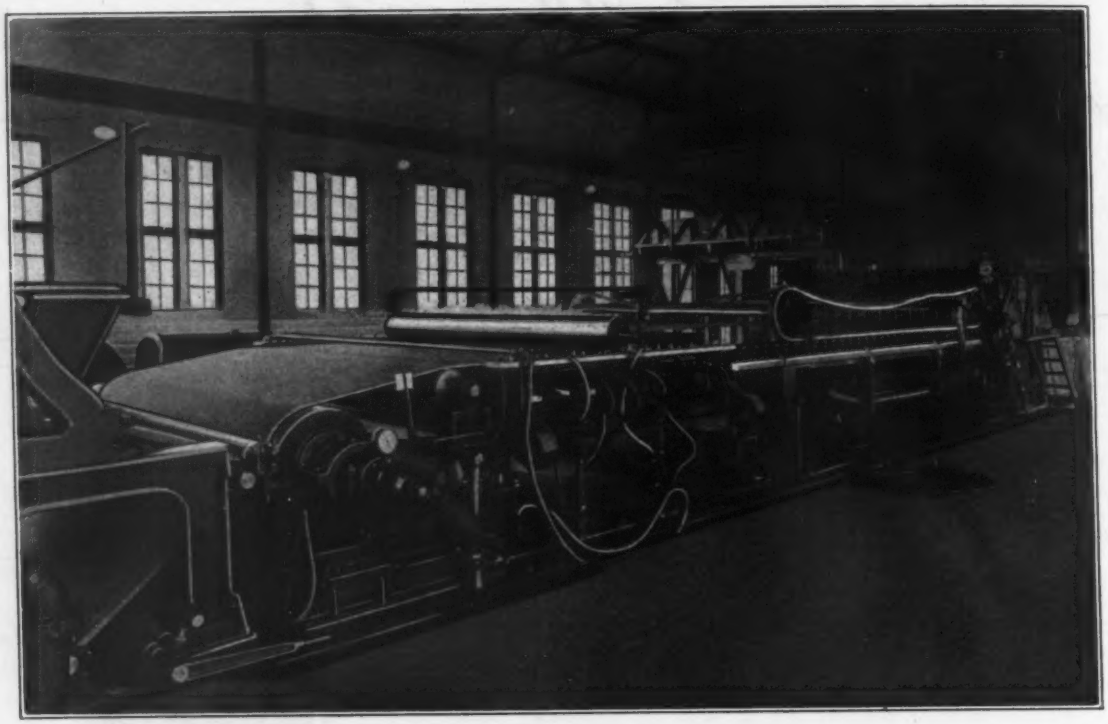
In building Manitowoc Digesters the cone and dome plates are carefully formed by special dies and brought to the proper curvature after which the edges are planed to insure neat fit and proper bearing. Every digester built by us is assembled completely in our shop before shipment and when assembled special machines drill the rivet holes in normal position. Before shipment plates, butt-straps, and castings are carefully fitted and marked, which insures accuracy in construction and eliminates all chance of erection delays in the field.

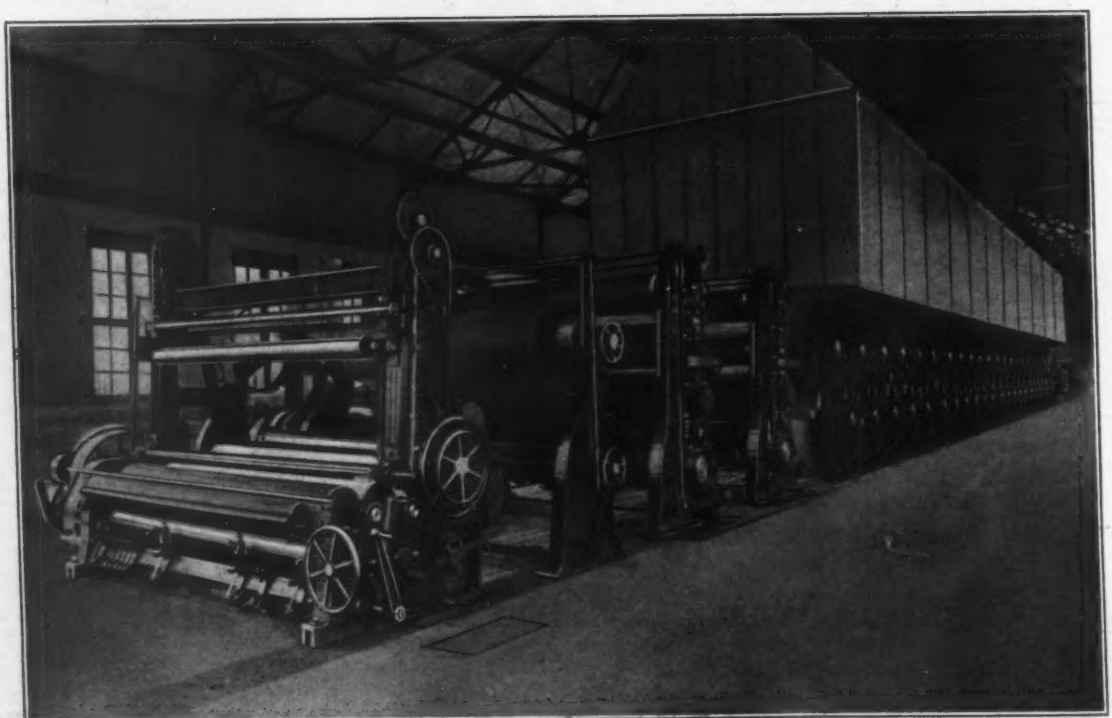
Other Paper Mill Equipment

We also design and build cylindrical rotary boilers, globe rotaries, incinerators, barking drums, lime recovery kilns, pulp refiners, Rod Mills, disc evaporators, water jacketed blow pipes, and other equipment for pulp and paper mill trade.

MANITOWOC ENGINEERING WORKS
MANITOWOC, WIS.

MANITOWOC





New Downingtown Machine
In Recently Completed Mill of
Hinde & Dauch Paper Co.
Trenton, Ontario, Canada

The top view on the opposite page shows the Keystone Removable, Adjustable, Shakable Fourdrinier, with a 126" wire, 75' long, equipped with a Kilberry Suction Couch and Suction Press Roll. The lower illustration shows the drier part of this machine.

This machine is designed for a kraft paper and light weight specialties, and is the SIXTH Downingtown paper machine purchased by this company.

When in the market for a paper machine, let us bid on your requirements. Bulletin describing the Keystone Fourdrinier gladly sent on request.

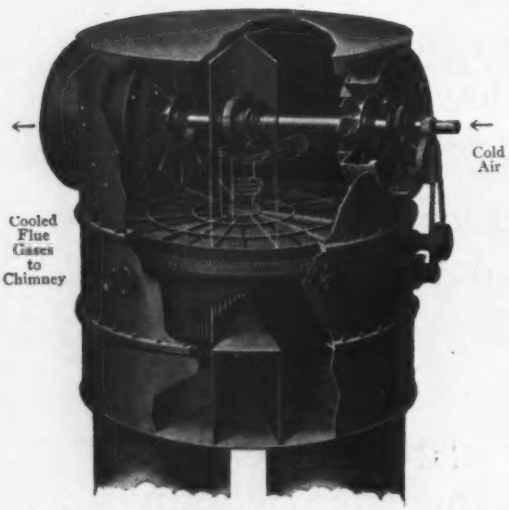
Downingtown Manufacturing Co.
DOWNINGTOWN, PA.

West Virginia Pulp & Paper Co., Covington, Va., where 2 Ljungström Air Preheaters supply "superheated air" to 2 pulverized fuel-fired 825 h.p. boilers.

Dominant in the great PAPER INDUSTRY

In such plants as these:

International Paper Co. at Berlin, N. H., Piercefield, N. Y., Niagara Falls, N. Y.
Algonquin Paper Co.
Bogalusa Paper Co.
The Chesapeake Corporation
Canada Paper Co.
Fitchburg Paper Co.
etc., etc., etc.


Cold Air
Cooled Flue Gases to Chimney
Hot Flue Gases from Boiler
Sectional View of Ljungström Air Preheater
Heated Air to Furnace

Over 500,000 B. H. P. now installed

Mechanical power is woven into every sheet of paper. Tremendous power is required to operate the mighty machines of the paper industry and power cost constitutes no small part of the cost of the finished product.

To lower power costs, many of the largest and best known paper mills have installed Ljungström Air Preheaters.

Savings of 10 to 15 per cent of the fuel, recovery of 70 per cent of the heat units lost up the stack, and greater steam generation from the same boiler units are the principal reasons why leading central stations, paper mills, steel and iron companies and other industries have ordered the Ljungström Preheater over and over again.

The Ljungström Air Preheater is a complete, compact unit, with integral forced and induced draft fans, that heats air to 400 to 600 deg. F. and is easily kept clean and dependable in operation.

Estimates and guarantees of savings cheerfully made on your plant. Write.

THE AIR PREHEATER CORPORATION
25 Broadway, New York
Canadian Licensees: Lammers & Maase, Ltd., 1075 Beaver Hall Hill, Montreal

Ljungström AIR PREHEATER

In 1910 you furnished me with two 20" siphons . . . . .

I AM PLEASED to inform you of the perfect standing up of the zinc coating with which these siphons were galvanized. On my last inspection I found them to be in as good condition as on the day of installation, nearly fourteen years ago. You will appreciate this when I state that the acids contained by the lake water completely destroyed a three-quarter inch wire cable attached to an A frame to support the suction end of the siphon, temporarily, as it swung into place in deep water, within a period of one year; as well as a heavily galvanized wire fence, used as a screen for drift

Taylor Spiral Riveted Pipe is giving this kind of service in paper mills all over the country. The reason is that only prime western spelter is used, applied at low temperature by a hot dipped process which leaves a much thicker coating of zinc than is obtained from ordinary commercial galvanizing.

Your request will bring a catalog full of information on Taylor pipe and Taylor flanges.

AMERICAN SPIRAL PIPE WORKS
Main Office and Works: Chicago, Ill., P. O. Box 485
New York Office: 50 Church Street

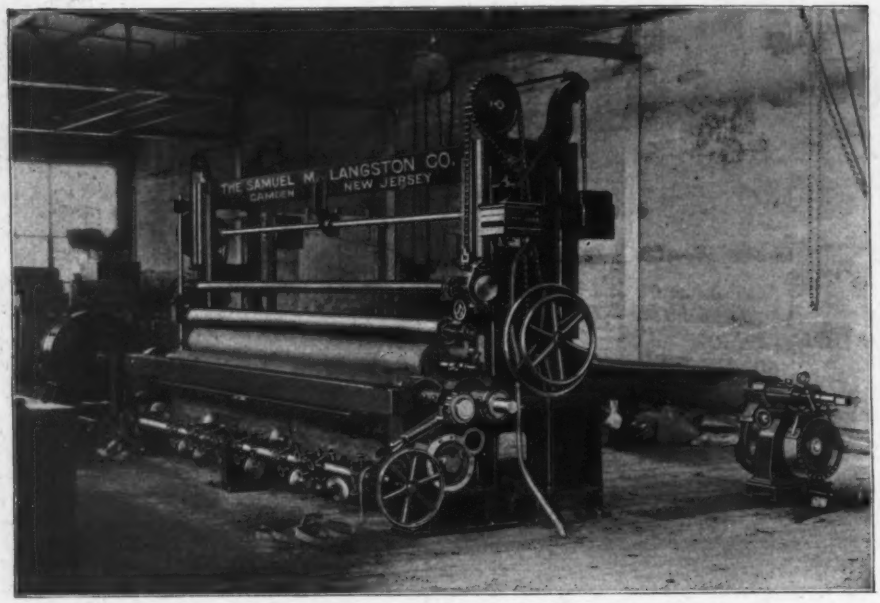
TAYLOR *Spiral Riveted* PIPE

Two Strong Points

(1) The riveted spiral seam for greater strength and stiffness without increased weight. Riveting is by compression under enormous pressure — not by hammering.

(2) The forged steel flange — practically unbreakable. It can be more securely riveted to the pipe, eliminating leakage. It cannot be broken in shipment, during installation or in service.

PTJ 10-27-Gray



One of Three Type "DA" Langston Slitters in Mill of Brown Paper Mill Company, Monroe, La.

The Langston *Shear Cut* conquers the toughest sulphite sheet!

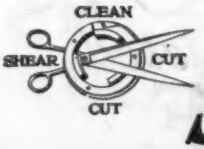
A SULPHITE sheet may be as tough as the hide of a rhino, but it doesn't bother the Langston Slitter. The Langston cuts the toughest sulphite sheet clean and all the way through and the cut is continuous with no narrow uncut strips or uncut fibres to hold the rolls together and make it difficult or impossible to separate them.

It's all in the Langston Shear-Cut. The Langston Shear-Cut method consists of two revolving cutter blades which make a cut like that produced by a pair of shears. These blades are always in contact with each other, making it impossible for even an inch of the paper to get by without being cut cleanly, completely.

Besides making a clean, complete cut, and easier separated rolls, the Langston Shear-Cut means rolls without any trace of lint or dust. And the Langston Winding principles insure rolls of just the degree of tightness you want, and hard-centered and of uniform density.

On sulphite—or on any other kind of paper or board—you can make better rolls on a Langston.

SAMUEL M. LANGSTON COMPANY, Camden, New Jersey
A. H. Cox and Company, Inc., Seattle, Washington



LANGSTON SLITTERS

PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., Inc.

LESLIE R. PALMER, President — GEO. S. MACDONALD, Vice-President & Treas. — F. K. HOPPIE, Secretary

Executive and Editorial Offices: 10 East 39th Street, New York
Chicago Office: Room 14, Suite 410, 123 West Madison St.

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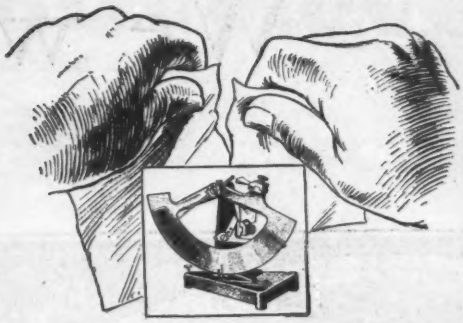


TEST YOUR PAPER THE MODERN WAY

Do not depend upon your judgment to tell you the tearing strength of paper.

Tearing the paper with your fingers may give you some idea of its quality—but it will not show *slight* variations.

The Elmendorf Paper Tearing Tester will do this automatically. And it will test your paper *with and across the grain.*

Because it works only by gravity and has no springs or other mechanisms requiring calibration or adjustments, the readings are always accurate.

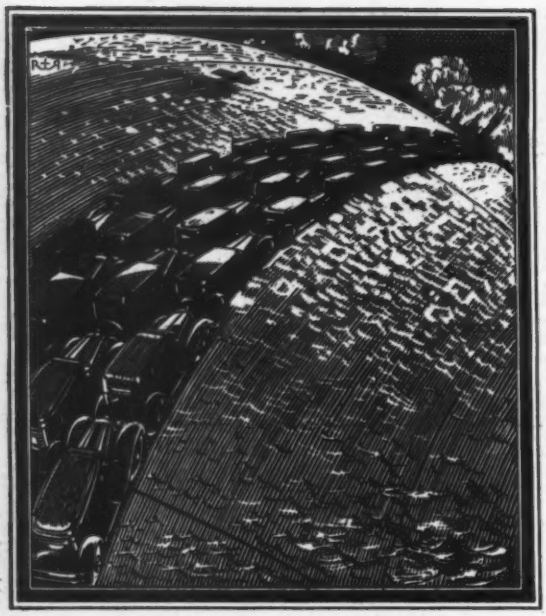
Send for Bulletin Seventeen

Thwing Instrument Company
3341 Lancaster Avenue
Philadelphia, U. S. A.

Makers of Thwing Pyrometers

167

London speaking. . .
We want
1000
cars



THE MANAGING DIRECTOR of a motors company in London talked with an automobile factory in the American Middle West and ordered a thousand cars. Amount involved, $1,500,000. Communication was over the regular long distance lines, and by radio telephone across the Atlantic. Delivery dates and other details were arranged; business conditions of the moment were discussed.

"I HAD URGENT NEED yesterday," writes a London barrister, "to confer with a brother lawyer in New York. . . . The conference was disposed of satisfactorily in 3 minutes."

A New York department store sold so much of a certain silk that it had to know whether more could be shipped from London immediately. More was quickly ordered by transatlantic telephone.

"I cannot resist letting you know," writes the president of another American company, "the result of a telephone call with London this morning. . . . It was the thrill of a lifetime. . . . And it's wonderful how much conversation can be crowded into a four or five minute talk."

Use transatlantic service for business and social calls. It's simplicity itself. Just ask for "Long Distance" and place your call in the usual way. . . . *Number, please?*

BELL LONG DISTANCE SERVICE

ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. LXXXV, No. 17 Thursday, October 27, 1927

Big Growth in Paper Industry on Pacific Coast

Many New Pulp and Paper Mills Nearing Completion and in Prospect in the Pacific Northwest Including Oregon, Washington, British Columbia and Alaska—Wide Awake Manufacturers of Pulp and Paper Machinery are Finding Varied Demand for Their Products—Modifications and Special Designs Necessary

By C. R. Berry, Seattle, Wash.

The pulp and paper industry was introduced on the Pacific slope as early as 1858 at Oregon City, Ore. Its century anniversary may see it the leading industry of the great wooded rim on the Pacific. Each year—at least for the past decade—has seen the ratio increased to such an extent as to almost justify the prediction that its pace is more rapid than can be economically adjusted by the industry at large. However, development has continued; and mainly because of the fact, capital has been forthcoming. The scarcity of adequate amounts of money at the points of manufacture in the West, or at any financial center west of the Rockies, has not been a deterrent factor to discourage development, for much of the capital that has been put to this service, indirectly, has come from eastern financial centers, supplemented in a small measure by European capital.

While it is axiomatic that the pulp industry must follow the raw material supply, it does not necessarily follow that because of a removal of the pulp resource, the paper making industry must pick up forthwith and companion the former to the last mill. Transportation problems, as applied to the movement of pulp from the West to the East are in a somewhat unsolved condition at present, but will be rapidly adjusted so as to guarantee to the eastern paper mills their share of the pulp materials of the West, although the manufacture of paper west of the Rockies will develop in tempo with the need for the finished product in the West, the Asiatic and the Antipodes markets.

Pulp and Paper Industry High Class

It is almost too trite to state in a trade journal having such an intelligent and technical class of readers that the pulp and paper industry is an outstanding one, in that it raises the industrial standard of any community where it establishes itself. In in New England states and elsewhere, where it has long been established, substantial towns and cities have been built around paper mills; a dependable, commendable citizenry has settled itself at the points of these and kindred operations in a way that has worked both a distinct and lasting benefit not only to the community but to the commonwealth as well. Workers employed in this industry are uniformly well paid; the industry demands intelligent persons, and with this happy combination, the pulp and paper mill employee settles down and becomes a dependable and respected citizen. Nor has the West been blind to the value of such industries; indeed, this meritorious feature, recognized and appreciated by the westerner, is perhaps the chief lode-stone in what seems to be mutual attraction. Heretofore, the seemingly impassable barrier of mountain ranges cut off any very lively hope of a really extensive utilization of the great reaches of raw material in this manner, for, to transport pulp eastward over railroads to the paper mills of eastern states was unthinkable, but now, just within the bounds of practicability. On the other hand, water transportation has offered a way out of the impasse and in the very near future is destined to be employed.

Now, the West, with its millions of cords of pulpwood, visions a replica of the substantial and prosperous towns of the East in the manufacturing in a huge way, the pulp by which the eastern mill may continue its deserved existence. The "saw mill town" of the Pacific slope is soon to experience a conversion over to a modern industrial center, with concrete buildings—veritable palaces of architectural efficiency,—replacing the shack-like saw mill, and industrious, intelligent workmen, with their well-ordered lives, superseding the nomadic saw mill hands of the older days. The people of the West are fully alive to the great advantages of pulp and paper manufacture and there will be no reasonable discouragement of the industry—of an industry that attracts to it the highest class of skilled artisans as this does.

Future Brighter for West

In some important respects, the future pulp industry has a far brighter outlook in the West than was ever possible in the East—and it might also be added, will be possible in eastern Canada. The two chief reasons being present pulp timber stands and future stands through re-growth.

It is not a Westerner's mere boast to aver that the average stand of pulp timber on the Pacific slope is around fifty cords to the acre, as against (a good average) twenty cords per acre in eastern states and eastern Canada. Re-growth is much more rapid also in the West, assuring a greater permanency for the pulp industry than in any other known region. These are the two foremost and forceful reasons why the pulp industry must expand; and it will expand with all the momentum behind it that an East, alive to the need for fostering a home industry so vital to its own peculiar interests, can give.

That the expansion program of the industry in this newer field has become a reality is in evidence everywhere along the entire Pacific coast, from Los Angeles to Juneau and eastward into the forested hinterland to the Rocky Mountains. It has been pioneer work from its inception down to the present time, with

capital always a little doubtful of the result if development proceeded upon a too large scale.

The start was made with small capital, although modern equipment. To bear out the wise judgment of the Nestors of pulp and paper manufacture in the West, practically all of the equipment first installed is in operation today, augmented, naturally, by new and more modern equipment; and, with the possible exception of the British Columbia mills, pulp and paper making machinery in western mills is almost wholly of American manufacture. As the existing mills expand, the latest designs of machinery are purchased—the western operator is fully alive to the necessity of keeping up to the minute in machinery for turning out his product and it is a notable and regular occurrence for him to install "the latest" in his expansion development program.

From the small start, 70 years ago in the state of Oregon, the present fine showing has been realized. This in the face of large and powerful influences against it for many years. The lumber interests felt that all the timber of the West was saw timber; they regarded the advent of the pulp mill as an encroachment, not realizing that it would, in time, prove to be a veritable savior of the timber industry. Added to the adverse influence of lumber manufacturers, was that of transportation, which, perforce, persists in a measure today.

The operations of the West are based primarily upon quantity production of pulp materials rather than the manufacture of high grade paper products. Generally speaking, the forest growth, because of its great abundance and heavy per acre yield, will permit of the manufacture of pulp in large quantities at a lower per cord cost than in almost any other section. Hence the present trend of production in the West is to manufacture pulp, boards, building papers and coarse papers. However, it would be a mistake to omit the fact that some very fine bonds, book papers and highly manufactured specialties are made in mills of the Pacific West; yet the fact remains the West will excel most in the production of pulp and the bulkier and coarser paper products, at least, until the local consumption of high grade papers increases considerably.

Tissues, fruit wraps, crepes and paper specialties of various kinds are made in increasingly large quantities by four or five mills specializing in these products, the latest addition to these being the Pacific Coast Paper Company, Bellingham, Wash., a small mill where ten tons of tissues are made daily from sulphite pulp from the San Juan Pulp Manufacturing Company, of the same city. Several large mills in Oregon produce a considerable amount of special papers, much of which finds its way through the export market to Japan, China and Australia.

Kraft Attracting Attention

Of the paper products now manufactured by existing western mills and to be manufactured by proposed mills, not the least is that of kraft stock. The new St. Helens Pulp and Paper Company mill at St. Helens, Ore., has blazed the trail for others to follow in this profitable line. This is the first all-kraft mill west of the Rockies, although a few of the mills include in the products they manufacture, some kraft and sulphate bag stock. Plans are maturing for an additional mill or two for kraft production, it having been discovered that mill waste, on account of the cost of culling out the knotty stuff, is more utilizable for kraft paper products.

Kraft and sulphate wrapping products have a large and somewhat far-flung market. Owing to the southern kraft mills dominating pretty much the middle-west trade, there is but little hope of western mills competing with them in that territory and in view of the fact the Rocky Mountains shut off any very lively hope of successfully competing because of the wide differential in freight costs, this field may be said to belong to the southern kraft producers. The coast cities, however, represent a no small market, which, together with a rapidly growing export trade, constitute a valid reason just why the plans for additional kraft mills on the Pacific Coast will not miscarry.

Utterly belying the pessimistic reports about the news print situation on the Pacific slope, not one of the mills making news print paper exclusively reports anything but unparalleled prosperity. From the wonderful mill of the Crown-Willamette Paper Company, at West Lynn, Ore., to the northernmost news print mill, the Pacific Mills Company, Ltd., of Ocean Falls, B. C., expansion and increased production has marked the entire year. It is more than probable that the present activities of the new Canadian Crown-Willamette concern of Vancouver, B. C., will be found to have in prospect a huge news print mill on Vancouver Island on their Campbell River properties. Several others, more or less in prospect, are planning ground wood pulp and news print mills.

The Alaska situation is slowly developing, but still too far in the future to call even probabilities; a group of newspaper publishers, headed by George Cameron, of San Francisco, have received a permit from the federal government for power sites and allocation of five billion feet of pulp timber in the Juneau district of Tongass National Forest, where it is proposed to erect an initial unit of a ground wood mill of 200 tons of news print per day, but to date a full engineers' report has not been made available. It is public knowledge that these grants were made to the concerns who were the successful bidders for the purpose of at once opening up these great pulp timber resources of the Alaska forest for paper manufacture, that being a definite condition of the grant.

The Powell River Company, Powell River, B. C., has doubled the output of its mill during the year, now producing 450 tons per day. This increased volume makes this concern the largest producer of news print on the Coast. The Ocean Falls (B. C.) mill and the Washington Pulp and Paper Corporation, Port Angeles, Wash., are also heavy producers and the latter mill has about completed an ambitious construction program, which includes the addition of another Fourdrinier, increasing its daily production another 100 tons. News print production in Oregon is no little item of the Crown-Willamette Paper Company and the Hawley Pulp and Paper Company's output; these concerns have been manufacturing news print paper for a number of years with a constantly increasing demand from local consumers and for export.

Thus far, little if any news print paper stock has been marketed in the East, although considerable speculation has been indulged in as to the practicability of trans-ocean shipping and of successfully meeting Canadian competition in the large consuming centers on the Atlantic coast. Up to the present, West Coast news print mills have been kept busy in supplying consumers in the West and Far East trade. In this respect, the point of saturation may be reached, and if so, incoming news print mills will take up seriously the question of water shipping via the Panama Canal and an invasion of the great eastern territory.

The prevailing question that the western manufacturer of cheaper grades of paper ever has before him is, "will the lower cost of my raw material offset the higher cost of getting my product to the big market." Time is the most powerful factor in his favor, unless perforce, the cost of the raw material increases in even ratio with the quite inevitable increased cost of paper products as the northeastern pulp timber resources fade away.

Pulp Production Illimitable

There are forty-one mills now in operation west of the Rockies, in California, Oregon, Washington and British Columbia. There are five idle mills, three in British Columbia, one in Oregon, and one in Alaska. However, at least four of these have plans under way to rehabilitate and commence operating in the near future.

In the forty-one active mills of the West, there is a potential output of approximately 12,500 tons of pulp per day. Actual production figures are not far below this, however, most of which, it is adduced, is converted into paper and board products; this in view of the fact that the only appreciable shipments of pulp have been to Japan and Australia—the latter mainly supplied from

British Columbia mills, who enjoy special trade reciprocities with their sister dominion of the Antipodes.

Some western pulp enthusiast has said there is "room for a thousand mills on the Pacific slope." An exaggeration of course, but it serves to illustrate to what bounds, justified or unjustified, it is possible for the industry to leap, before the markets in the profit radius are surfeited.

Thus far, pulp mills have produced chemical pulp almost exclusively, with the exception of the Occident Pulp and Paper Company, Edmonds, Wash., a 40 ton mill producing ground wood pulp for nearby paper mills and Japanese contract shipments. Ground wood pulp has also been manufactured by the Crown-Willamette Paper Company, Hawley Pulp and Paper Company, Oregon Pulp and Paper Company, Washington Pulp and Paper Corporation, Inland Empire Paper Company, Columbia River Paper Mills, Cascade Paper Company, Pacific Mills, Ltd., Powell River Paper Company, British Columbia Pulp and Paper Company, and two or three of the idle mills; but practically all of this has been for conversion in their respective plants, in connection with the sulphite, kraft or sulphate pulp manufactured by them for paper, board and specialty products.

If there is not "room for a thousand mills," there is at least enough timber "blocked out, in sight" for a great many more pulp plants. The point of saturation has not been reached—cannot be reached by any present method of analysis. The situation of the West is not unlike that of Canada where, no matter how many mills are brought into production, the demand for paper products keeps apace. The rapid increase of the pulp and paper industry on the Pacific is an attractor that gathers around it other industries, which, in turn, attract others. It stimulates rail transportation and water shipping. It influences the growth of the community wherever it establishes itself, in a manner the lumber industry could never do. It takes the low grade timber and transforms it into high grade commodities; it is an ideal conversion, wherein the result is thousands of dollars in beneficial circulation instead of inert mountains of worthless sawdust. And for the two reasons that have been advanced, the western paper making industry may justly be regarded as permanently replacing the transient saw mill of the pioneer. Where now, in a number of recent instances, the pulp mill is an adjunct to the saw mill, in the future this situation will be reversed and the gradually lessening world demand for lumber products will be met by the saw mill operated by the pulp manufacturer in working up the select timber that is found to be more profitable as lumber materials. These may be considered mere predictions, but if so, they are not without foundation and the future may be depended upon to justify them—in part, at least.

Equipment Changes Necessary

Manufacturers of pulp making equipment find a varied demand for their products in the West. They find that changes, or modifications, or, in many instances special designs are not only advisable, but necessary. This is due to several fundamental differences in the character of the pulp timber, not the least of which is size; and while it is true that the pulp woods of the South—Long Leaf, Yellow pine, gum—approach in size the pulp woods of the West, they differ in other respects. This signifies that wide-awake machinery manufacturers will study the needs of the western pulp manufacturers with the happy result that existing and future pulp mills will attain to greater volume of production with consequent larger savings effected.

Not only is the size of the timber greater than that of eastern United States and eastern Canada, but the texture is different from that of the woods of both these regions and the South. Then the moisture content is greater and, owing to its more rapid growth, the percentage of fine, short fiber is greater—a fact that, in all likelihood, has resulted in large losses. To date, but very little study has been made of the forest growths of the West to determine what may be possible to do with them in their utilization for finer pulping products. However, the Forest Products Laboratory at Madison, Wis., and the College of Forestry, University of Washington, Seattle, Wash., have taken the matter up in earnest with a closer study of the differences that may be found in the treatment and reduction of a wood that attains to a greater size, more rapidly, in a more humid and moisture-laden region than that for which most of the present equipment was designed.

Some modifications are bound to come as well. The Western pulp maker will demand more rapid and labor-saving barking equipment; a barking lathe—to turn the bark off the log before going to the slashers—it is known is now being designed, which will undoubtedly meet the existing need for cleaning the wood in a more rapid manner and with the least possible handling. Natural conditions so ideally contributing to the harmonious dual activity of wood harvesting and pulp making, the practice in the West of the union of these two efforts under one management, is almost universal; this feature renders it imperative on the part of the pulp manufacturer that modern wood harvesting methods be employed in order to hold down the raw material cost as an offset to higher getting-to-market costs. Here, in the West, the "wood-chopper" is gone into the limbo of the past; fallers, buckers, chokermen, hook tender, donkey men, replace the wood-choppers as the human factor; keen saws and axes reduce the tree; steel cable, mammoth yarders and powerful donkeys fairly snatch the log from under the saws of the buckers into the air, along the silvery line, soon to be deposited in the wood yard of the pulp mill—a hundred, two hundred, three hundred thousand feet per day, while the same human factor, as wood-cutters, would knock out twenty cords of wood. It is not a matter of pride—it is rather a matter of necessity that volume production be practiced where timber occurs in such fecund stands. Appropriate equipment and advanced methods of harvesting and preparing are also matters of necessity rather than from a desire to do things in a magnificent way.

Engineers Sense Importance of Western Development

The very best of the country's engineering talent is alive to the possibilities of the pulp industry in the states, Province and Territory bordering on the Pacific. None of the problems affecting the industry at this time may be said to be insurmountable. Transportation experts, together with a reasonable attitude on the part of transportation companies, can surmount in like manner the impedimenta of excessive freight rates. Both engineering and transportation problems solved, the pulp industry will have a clear field, needing but a steady market to guarantee success.

Taking a bird's-eye view of the somewhat elongated blanket of pulp timber along the Pacific Coast—to that indefinite rim on the west side of the Rocky Mountains—the focal point appears to be in the northerly portion of the state of Washington. Extending southward, it touches the state of California. The future, however, may include the Great Bear state as a pulp wood producer in the light of recent successful experiments with redwood. Northward, the pulp timber may be said to reach to southeastern Alaska, although there is an appreciable thinning out of pulp wood species in British Columbia above the northerly end of Vancouver Island, where non-pulping varieties, notably red cedar, predominate. The heaviest stands of spruce, hemlock, white fir, alder and cotton wood are centered in Washington and lower British Columbia.

While it is physically and mentally impossible to form any kind of accurate guess at the extent of the pulp timber resource of the Pacific slope, from deductions made by the writer, 500,000,000 cords might cover it; then, in this connection, it is also timely to state that by judicious care and attention, due to rapid regrowth, this stand may be made to serve the pulp industry perpetually, using that amount as a sustained yield basis.

This is virtually a pulp manufacturer's paradise. All the year operations make it so to the last idealistic touch. Stands of pulp timber in Oregon, Washington, British Columbia and Alaska run-

ning from fifty thousand to two hundred and fifty thousand feet per acre (70 to 350 cords) is ideal.

Much of this blanket stand lies off the beaten path; some is almost inaccessible, or too costly to log at present prices, or without elaborate and specially designed equipment. But it is not too great a strain upon the imagination to vision scientific and efficient aerial tram lines flinging out their slender tentacles to draw down from the far off mountain heights the pulp wood species which thrive in the higher altitudes and which, in their conversion, result in the highest grade pulp.

Much has been accomplished toward attracting capital to exploit and develop the West's pulp timber resources; a great deal more is yet to be done to consolidate the gains already made and keep the momentum from lessening, or, on the other hand, going without bounds.

The progress of the industry has so far been characterized by earnestness of purpose. The situation has never been panicky; prices have maintained a reasonable level—influenced largely, of course, by the eastern markets. The products themselves have been uniformly good for their kinds and grades—the western mills have been singularly fortunate in attracting to them experienced managers, trained technicians and skilled workmen wherever needed. Mistakes have been made, some of which were costly mistakes, but western enterprise and optimism kept unfalteringly at the job and in not a single instance where faulty design or improper selection occurred, has there been a failure.

Water Power a Great Future Aid

The utilization of hydro-electric energy, developed solely for pulp and paper mill operation has a great future in the West. Similar conditions exist on the Pacific slope that are found in Quebec and Maine. The slight advantage if any, is in favor of the power resources of the northeast, where far more extensive watersheds occur in connection with the streams of eastern Canada, and, to a more limited extent, those of northeastern United States, for the run-off of western streams is not so constant, necessitating greater impounding basins for storage over the low water season. This disadvantage is corrected somewhat in northern British Columbia and Alaska where precipitated waters feed the streams as abundantly and as regularly as do the extensive watersheds of eastern Canada.

There is upwards of 1,000,000 horse power of hydro-electric energy now employed in the pulp and paper mills of the West. In comparison with eastern centers of the industry, this total is not very imposing, but a decade from now may see an increase that is startling.

Water power seems to abound in regions where pulp timber occurs—quite universally. Lower cost hydro-electric development in the West is possible, largely because of the natural storage and dam sites that are everywhere found and also by reason of the frequency of bed rock conditions flanking the streams. Hydro-electric power development in almost any part of the forest area of the Pacific should not cost above $100 per horse power, unless extraordinary conditions intrude, and most developments should cost much less.

The following twelve months will see a substantial increase in the output of pulp products in the West. Several large and a lesser number of small mills will come into operation after the first of the year if their schedules are maintained.

It is quite reasonable to suppose that the Longview Fibre Company, Longview, Wash., will be the first of the new mills to start production. At this time the machinery is practically installed and wheels may be turning before the new year. This mill, as has been announced, will manufacture sulphite and kraft stock and have a capacity of 125 tons daily. The Hoquiam Pulp and Paper Company, one of the new Zellerbach mills, has progressed to the point of actual construction of the buildings; considerable foundation piling was necessary upon which to build their concrete structures; this is to be a most modern plant and will manufacture 120 tons of sulphite pulp per 24 hours.

At Newberg, Oregon, the Spaulding Pulp and Paper Company is building a 50-ton sulphite pulp mill; this may be in operation by the early part of the year. The Buffelin Lumber Company, Tacoma, Wash., are making preparations for the erection of a 50-ton sulphite mill also. Surveys for the water supply have been completed and it is understood construction will commence before the first of 1928.

Astoria, Ore., is planning for a 50-ton sulphite pulp mill, the Astoria Box and Paper Company having negotiated with B. T. McBain and Henry T. Ford, of Portland, who have completed plans for the mill after, it is announced, construction will shortly follow. The Zellerbach Paper Company's prospective sulphite and kraft pulp mill to be located at Port Townsend, Wash., has reached the status of a certainty, with the Port Townsend citizens agreeing to cooperate in furnishing an adequate water supply for the new mill. With the assurance that they had so guaranteed 10,000,000 gallons of water daily, the decision was made by Zellerbach officials and work is already under way.

There are perhaps a dozen more pulp and paper mills in prospect in California, Oregon, Washington, British Columbia and Alaska, all of which are yet on paper and of which nothing definite can be stated at this time.

Owing largely to the fact that the pulp timber is found in greater or lesser quantities in the three states and British Columbia, the products manufactured from pulp vary to a considerable degree. California, with its twelve paper products mills, imports practically all of its pulp material and confines its manufactured products almost wholly to box and container board and roofing paper products. Oregon's paper mills manufacture a more diversified line of paper commodities, ranging from box and container board to tissues and high grade book, of which news print is perhaps the largest single item. The state of Washington furnishes a greater amount of pulp to other mills, but also manufactures many different grades of paper products, with nearly as wide a range as that of the Oregon mills—board, news print, book, bond, tissue specialties, etc. British Columbia mills specialize more in the production of ground wood paper products, of which newsprint is the chief commodity.

The near future will experience many and varied additions to the pulp and paper industry of the Pacific slope and it is to be hoped no unreasonable legislation will mar the bright future in store for it. In the final analysis, legislation generally follows protracted abuses of privileges, hence it is directly up to the industry to so comport itself that such prohibitions are found unnecessary by legislators.

Adequate Fire Protection Absolutely Necessary

Sterner measures must be employed in order to guarantee a perpetuated pulp industry in the West. Fire annually sweeps over large areas of pulp timber and without complete cessation, will rapidly eat up the resource, before the industry is permitted to get firmly established. It must be considered as a penal offense to burn up a timber stand in the same light of reason that the crime of arson is punished; legislation on this vital point cannot come too soon and cannot be too harsh.

While it may seem somewhat straight-laced to prohibit men smoking when working in the timber, it is the ounce of prevention that is worth many tons of cure and already timber operating concerns are insisting upon it; some have been forced to discharge numbers of their employees for violating this rule, but it is having a salutary effect upon all.

Already the investment of capital in the paper industry on the Pacific slope has run far into the millions; it is however, but a start. The timber resource is the sole attractor for the huge investments necessary for this kind of operation; the West must therefore take extreme care of its one great asset and to protect it against the annual menace of fire. Federal and state and provincial officials having the matter of this protection under their control may be relied upon to give the necessary protection if the citizens of those states and province will but do theirs.

Longview Fibre Co. Builds Up-To-Date Plant

Pulp Mill Will Use Refuse Wood Now Being Burned at Big Saw Mill of Long-Bell Lumber Co. —150 Inch Black-Clawson Six Cylinder Machine Will Produce 100 Tons of Sulphate Liner Daily—Yankee Fourdrinier to Start About Jan. 1

Longview, Wash., is located 50 miles downstream from Portland at the Junction of the Cowlitz and the Columbia Rivers. Deep water harbor facilities are available where ocean-going freighters of any size can be accommodated. Adequate main line railroad service is available.

The primary reason for the location of a large pulp and paper mill in Longview is the fact that the Long-Bell Lumber Company operates the largest of its sawmills here—in fact, it is the largest sawmill in the country—cutting approximately 1,800,000 feet of lumber per day. It is the waste from this sawmill which will feed the pulp mill. The Long-Bell Lumber Company own billions of feet of Douglas Fir timber within economic transportation distances of Longview which, together with the fact that an extensive reforestation project is being carried out, assure a long period of operation.

The Longview Fibre Company will utilize the refuse wood, now being burned, in the manufacture of its product. Hog fuel for steam generation, as well as waste wood, will be purchased under a long term contract with The Long-Bell Lumber Company.

The conception and subsequent development of the project is due primarily to the efforts of men connected with the Thilmany Pulp and Paper Company of Kaukauna, Wis. M. A. Wertheimer, who is president of the Thilmany Pulp and Paper Company, is chairman of the board of directors of the Longview Fibre Company. H. L. Wollenberg, formerly connected with the Beacon Oil Company of Boston, is president of the new company. D. C. Everest, general manager of the Marathon Paper Mills of Rothschild, Wis., is vice-president. M. T. Ray, connected with the Thilmany Company, is secretary of the Fibre Company. R. S. Wertheimer is resident manager of the Fibre Company. C. R. Seaborne, chief engineer of the Thilmany Company on leave of absence from that plant, has been in charge of the design and construction and installation of machinery for the new plant. W. E. Dodge of San Francisco has been construction engineer. He assumes the duties of Chief Engineer on completion of construction, as Mr. Seaborne returns to the Thilmany Company.

General Construction

The main mill building, which is in general 90 feet wide, with the exception of the boiler house which is 180 feet wide, is constructed entirely of reinforced concrete. The building is 1000 feet long from digester building to paper storage pit. The digester building, which is 100 feet high, is of a little different construction than the remainder of the mill, in that the reinforced concrete pilasters have only been carried through the second floor, the sheathing from there up being Transite board.

The foundations are on piles throughout the mill, only the auxiliary buildings such as the store room, the office and the maintenance building having been erected on spread footings.

Wood Preparation

Three Swedish chippers manufactured by the Karlstads Mekaniska Verkstad of Karlstad, Sweden, have been purchased. Two of these, with 83-inch diameter discs, are equipped with pressure feed attachments which insure uniform feeding of the miscellaneously sized wood; the other machine, with a 110-inch disc, is not so equipped. One of the 83-inch chippers is installed at the East Fir Unit of The Long-Bell mill and the other is to be installed at the West Fir Unit of The Long-Bell mill. The 110-inch chipper is installed on the Longview Fibre Company property.

Chips made at the chipping plant on The Long-Bell property will be transported in specially built cars, containing about 20 units of 200 cubic feet each, to the screen room located on the Longview Fibre Company property.

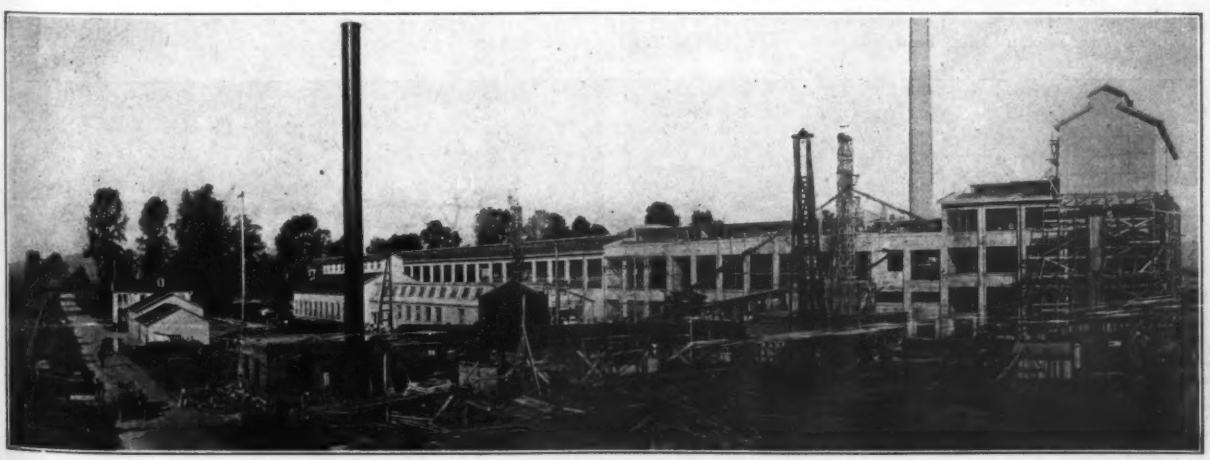
The chip screen room equipment consists of five Deister Machine Company Plato-tables, each capable of screening five cords per hour. A Lombard crusher built by the Waterville Iron Works, Waterville, Maine, will refine the over-sized chips.

A small reserve storage of refuse wood has been built up prior to starting the mill, which wood will be handled by locomotive crane onto conveyors serving a Smith-Valley horizontal steam splitter which is in the conveyor line to the 110-inch chipper.

Cooking

Four stationary hammer welded digesters of 2500 cubic feet capacity, manufactured by the Blaw-Knox Company of Pittsburgh, are installed. These are equipped with Morterude circulating pumps. The conventional type chip bin of approximately 250 unit capacity serves the digesters.

All of the digester controls and instruments have been centralized at the top floor of the digester building with the exception



PLANT OF THE LONGVIEW FIBRE CO. AT LONGVIEW, WASH.

of the blow valves. Locker rooms and chemical control station have also been provided on this floor.

Washing

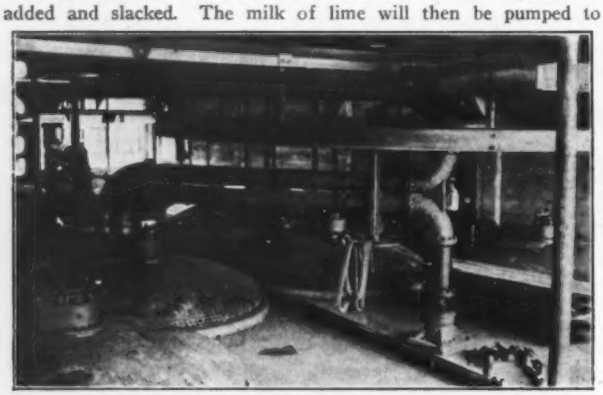
Fourteen riveted diffusers have been installed in two rings of seven each. Swing pipes connect the diffusers to the digester blow lines. A circular stock chest serves each ring of diffusers, circulation in the stock chests being maintained by means of propeller type agitators. Three large Hayton centrifugal pumps deliver the stock to the knotter head boxes.

The blowing system from the digesters is as follows:—After the pulp has been blown into diffusers from the digesters, the steam and non-condensable gases are led to a saveall of approximately the same dimensions as the diffusers. Here the bulk of the entrained fibre will be thrown out. From the saveall the gases go into a cyclone, where the final separation of fibre is made. From the cyclone the gases go through a heavily built tubular heat interchanger. Hot water for diffuser washing is thus obtained. The gases are then led through a baffle type scrubber which acts as a combination jet condenser and gas washer. The non-condensable gases at this point are collected and led through suitable flame arresters to the furnaces, where they are burned.

Causticizing

The causticizing department is of the batch type, containing ten mixing tanks. The mixers are installed on a mezzanine floor over four rectangular strong liquor storage tanks.

A lime reburning kiln 124 feet long, 6 feet diameter, will handle the rejected sludge. In connection with the lime kiln a continuous slacker has been installed in which the make-up lime is added and slacked. The milk of lime will then be pumped to



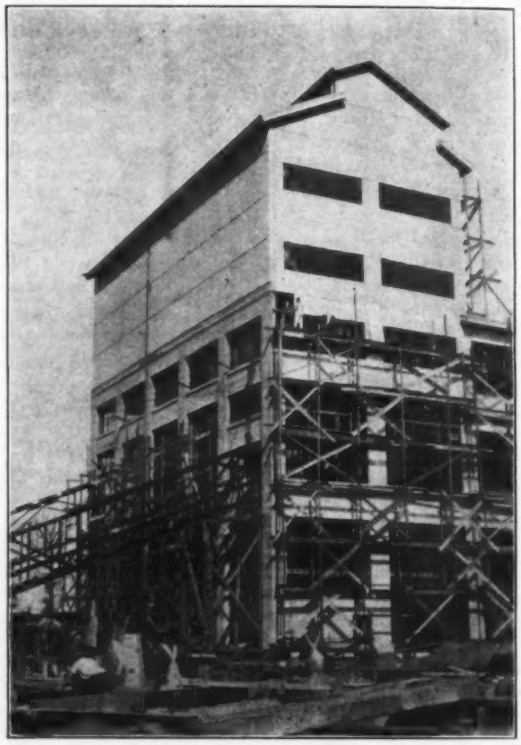
DIFFUSER ROOM

the decanting tanks in the causticizing room. An Oliver filter serves the kiln.

Recovery Department and Boiler Plant

The recovery system is unique, in that an entirely new type of evaporator and smelter have been installed. The system used is a patented process developed by Peebles Processes, Inc., of San Francisco, Cal.

The Peebles Process differs from all other sulphate recovery systems in the high concentration of black liquor effected by a unique and very efficient evaporating apparatus and in the improved features of furnace feed and construction. It eliminates

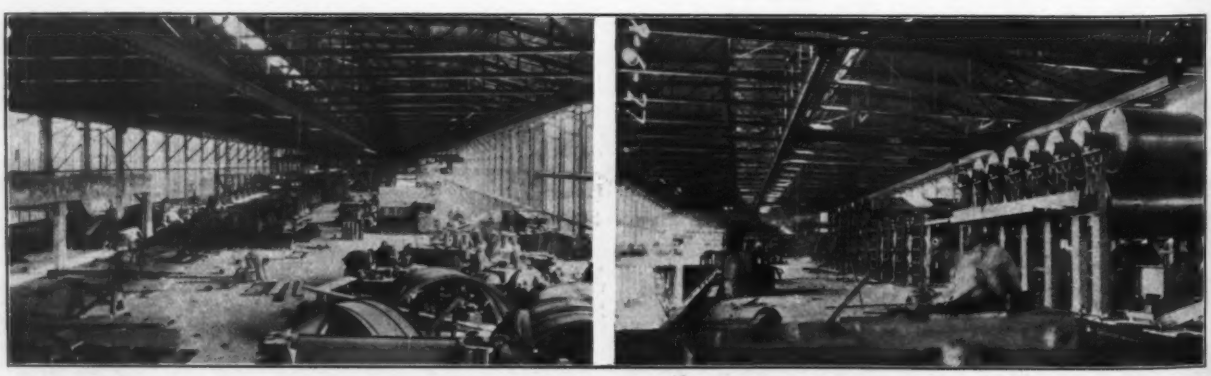


DIGESTER BUILDING

the usual kraft mill odor and effects economies in construction and operation.

By means of a quintuple effect evaporator taking its steam from a double effect high pressure dehydrator the black liquor will be concentrated to between 75 and 80% solids. The black liquor at this high concentration is then introduced into the furnaces, together with the requisite make-up salt cake, through a specially designed feeding device. The non-condensable gases liberated during the evaporating process are led to the smelters and burned.

The smelters, of which there are three, are 9 feet in diameter and 30 feet high, and are constructed of chrome tile. Detrick suspended air cooled side wall construction has been used through-



LEFT—VIEW IN BEATER ROOM. RIGHT—VIEW IN BOARD MACHINE ROOM

out. Fans force the combustion air through the hollow furnace walls for preheating, which air is then led into the upper zones of the furnace for secondary combustion.

Directly connected to each smelter is a Babcock & Wilcox 570 hp. Stirling type boiler. The boiler installation was made by the C. C. Moore Company of San Francisco.

Hog fuel is transported in hopper cars of special construction from The Long-Bell Lumber Company fuel house to a track hopper located to the east of the boiler house. A system of conveyors connect the track hopper with the boilers.

The hog fuel fired boilers, of which there are three 837 hp. of the Stirling type, were furnished by the C. C. Moore Company. They are equipped with Beecher step grates and Dutch oven furnaces of the drop nose type. The walls and arches of the furnaces are of the Detrick air cooled suspended type of construction. Back shot oil firing has been provided as an auxiliary fuel.

A 307 foot high by 13 foot diameter, at top, Rust Engineering Company concrete stack serves both waste heat and direct fired boilers.

The boiler house auxiliaries consist of two Byron-Jackson multi-stage centrifugal feed water pumps direct connected to DeLaval steam turbines, and a Cochrane hot process water softener, filter and feed water heater.

Electric Power

A 2500 K.W., 440 Volt, General Electric turbo-generator of the bleeder type has been installed. This will run in parallel with The Long-Bell generating system consisting of four 6000 K. W. machines. Up to a maximum of 2000 K.W. are purchased from The Long-Bell Lumber Company. This energy is brought into the plant from The Long-Bell power house over a 13200 Volt line, through an outdoor substation.

The switchboard layout is of the latest type of remote controlled units, the switch room being located directly under the control board in the turbine room.

Water Supply and Sewage Disposal

The water supply and the sewage disposal systems are interesting in that the valley in which the town and the mill are situated is, on the river side, protected by a 30 foot high dike and it was necessary to provide dependable means of operation and control for these two systems. Three Byron-Jackson turbine type, motor driven, vertical pumps are installed in a natural basin connecting with the river. These pumps throw the water through a 30-inch welded steel pipe line over the dike. The water then passes through two Improved Paper Machinery Company filters and into a large surge tank. From the surge tank it runs by gravity through a 30-inch steel pipe to the suction of three Byron-Jackson mill supply water pumps.

The plant sewage is discharged into a sump in which are set three vertical Byron-Jackson pumps. These pumps discharge through a 24-inch steel pipe over the dike into the river. At normal water levels of the Columbia the sewer pumps will not be necessary, as the water will syphon over the dike, and it is only at the high water stages that these pumps will be used.

Screen Room

The screen room accommodates three Impco knotters serving four Bird centrifugal screens. A Biffar refiner has been installed to work up the screenings. Five Impco deckers thicken the stock for the beaters. A Rogers wet machine has been installed to take care of fluctuations in supply of pulp from the pulp mill and demand for pulp by the paper mill.

Beater Room

The beating equipment consists of four Jones 2000 pound beaters driven by 150 hp. motors. Texrope short center drives have been used for the transmission. Five Shartle Miami Jordans direct connected to 250 hp. synchronous motors have been installed. The jordans are served by Shartle triplex stock pumps, while the beaters are filled with slush stock by Byron-Jackson stock pumps.

A concrete breaker heater with Shartle roll and auxiliaries is installed under the dry end of the board machine.

Board Machine

The board machine, manufactured by the Black-Clawson Company of Hamilton, Ohio, is of the stack dryer type, with 101-42-inch dryers. There are six 150-inch cylinders, each equipped with a sponge rubber rider roll. A 12-plate Shartle flat screen serves each mould. A Millspaugh suction roll and three sets of secondary presses complete the wet end.

The main line of dryers is arranged in stacks, each being five high. Two stacks of calendars seven and nine rolls high follow the dryers. A stack reel is served by a Moore & White double drum winder.

A General Electric sectionalized drive is installed, power for which is furnished by a 450 K. W., motor generator set.

The machine is built to make up to 100 tons per day of sulphate test liner at speeds up to 250 feet per minute.

Paper Machine

A paper machine has been ordered from the Beloit Iron Works for delivery January, 1928, this being a 172-inch Yankee with a 12-foot diameter dryer.

New Downingtown Plant Completed

Downingtown Paper Company, No. 3 Mill, located at Downingtown, Pa., on the main line of the Pennsylvania Railroad, was completed and put in operation on July 6, 1927, producing high grade box boards.

The new mill is equipped with one 90 inch trim, seven-cylinder board machine with six pair of auxiliary presses, four main presses; one-hundred-eight 36 inch diameter dryers, three stacks of calenders, duplex cutter, seven 10 plate screens, manufactured by Shartle Brothers Machine Company, of Middletown, Ohio.

In the beater room are four 14 foot Globe Rotary Boilers, erected by the Biggs Boiler Works, Akron, Ohio; one Shartle Brothers Beating System; four beating engines, installed by Dilts Machine Company, of Fulton, N. Y.; four No. 1 Miami Jordans; eight Duplex Stuff Pumps and eleven Agitators, furnished by Shartle Brothers Machine Company.

The Finishing Room contains one 74 inch Datonia Cutter, installed by the Seybold Machine Company, of Dayton, Ohio.

Power is produced through four Corliss Engines, installed by the Hooven, Owens and Rentschler Company of Hamilton, Ohio Four Keeler Boilers, installed by the E. Keeler Company of Williamsport, Pa., are equipped with Aero Unit Pulverizers operated with Terry Turbines, installed by the Power Specialty Company, of New York.

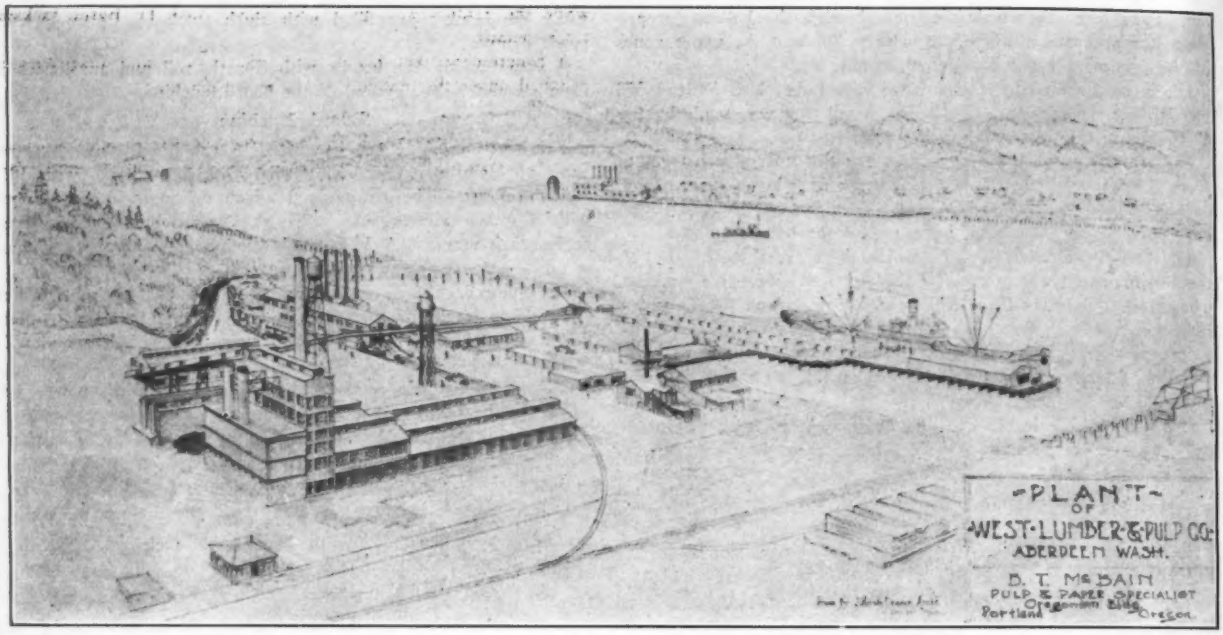
The building specifications are as follows: Dimensions—150 feet - 350 feet—one, two and three floors. Foundations of stone masonry. Walls—stone, masonry and brick. Inside structure, steel columns, girders and beams. Floors—concrete. Roof—American Cement Channel Tile with Felt and Asphaltum Water-Proofing.

Fire Protection is provided by Automatic Sprinklers, installed by the Globe Automatic Sprinkler Company, of Philadelphia. Small Hose and Automatic Fire Doors throughout with 4 Yard Hydrants.

Automatic Electric Push Button operated Elevators have been installed by the Otis Elevator Company, of Philadelphia.

The mill is designed and built along lines of their present No. 1 and No. 2 plants, with a few minor changes for improvement.

In 1917 this Company started their No. 2 Mill, which was built to care for the demands for their product. This demand has steadily increased, until it was deemed advisable to instal another unit, the No. 3 Mill. With this mill running they are in a position to produce different grades in each mill, and thereby make more prompt deliveries.



Aberdeen to Have New Sulphite Pulp Mill

West Lumber & Pulp Co. Plan to Construct Up-to-Date New Plant for the Manufacture of Raw Material for Paper Making—Location of New Plant Assures Ideal Transportation Facilities—Paper Mill Plant Contemplated

Construction of a new 100 ton sulphite pulp mill will be started in the near future on the former A. J. West mill property at Junction City, Washington. The new plant will be operated in conjunction with the West mill by a new corporation to be known as the West Lumber and Pulp Company.

The first unit will employ 350 to 400 men at the outset and the number of employees will be increased later when a contemplated paper mill is added to the plant. The new company is now being incorporated for $2,500,000. The West mill, closed since February, will reopen for lumber manufacture on October 1.

Location of New Mill

The new mill will be located north of the sawmill and will have frontage on both the Junction City road and the Chehalis River. A large warehouse will be built at the river, enabling ships to load pulp directly from the store rooms. A spur track to carry land shipments will be built also.

The West Lumber and Pulp Company have issued a statement, as follows:

"Aberdeen voted water for industrial purposes only a few months ago. Today Aberdeen is assured a 100-ton sulphite pulp mill which it is expected will increase the payroll of this district by at least 350 to 400 men, and when the paper mill comes, which will naturally follow within a short period of time, just as surely as the night follows the day, this payroll should be increased at least 50 per cent.

"For many months, to be exact, ever since the Hayes & Hayes bank closed its doors, A. J. West Lumber Company officials have been determinedly working on a pulp mill to operate in conjunction with their sawmill properties in Junction district, Aberdeen.

Contract Made Last June

"In June a contract was made between the West brothers, Watson A. and Edward, and J. E. Fowler, with H. O. Schundler, of Jersey City, N. J., setting forth the plan of financing and today this plan has been completed with the aid of such men as Theo. B. Bruener, W. H. Tucker, A. L. Paine, E. K. Bishop, Schafer Brothers of Montesano, C. W. Yana of Westport, H. W. Bale and the companies they represent, Standard Oil Company and Gray's Harbor Iron and Machine Works, all of whom acted for the good of Aberdeen.

"This new acquisition to the industrial growth of the city will manufacture bleached sulphite pulp of the highest possible grade and will supply bond and book paper mills of the Atlantic coast with their raw material through the well known importing firm, Pulp and Paper Trading Company, 21 East Fortieth street, New York, of which Johannes (Jack) Andersen is president.

"The company has made a tentative contract for its lumber product with Dant & Russell, large lumber and shipping firm with sales offices, ships and yards in many parts of the world. Under the terms of this agreement the lumber products of the company will have an ever ready market.

"A pulp and paper chemical engineer of the highest experienced and technical type has been arranged for to take direct charge of the operation of the pulp mills under the general management and supervision of B. T. McBain, the designer, general manager and vice president of the new company.

Incorporated in Maryland

"The West Lumber and Pulp Company will be a Maryland corporation and is now in process of incorporation under the direction of the company's counsel, Commander A. B. Clements, for many years a naval officer and later connected with many important official positions at Washington, D. C., including the Shipping Board under Admiral Benson when he was chairman of that important government board.

"The new firm will be incorporated for the manufacture of pulp, paper and lumber, as well as all other lumber products and will be authorized to do business as a foreign corporation in the State of Washington.

"C. W. King, New York capitalist, connected with the great Du Pont interests, will be president; B. T. McBain, Portland pulp and paper expert, and W. E. Johnson, Montesano banker, vice-presidents, and Commander A. B. Clements, Washington, D. C., chief counsel. Mr. McBain, who drew the plans for the pulp company, will act as general manager.

"The chief offices of the company will be at Aberdeen.

"W. A. West and E. R. West will be retained by the new firm in important operating capacities and W. A. West will be a director.

"J. E. Fowler will be auditor and have charge of the lumber accounting department, according to present organization plans.

"It is expected that the sawmill will be put into operation by October 1 of this year and as the plant will cut hemlock logs only, the pulp wood available from mill ends, inside trim and common lumber will be put into stock for use when the pulp mill is put into operation.

"The corporation will have a capital stock of $2,500,000, and the company is making arrangements to secure many thousands of acres of timberlands now under option for pulp wood use besides the sulphite pulp mill and the present plant on Chehalis River.

"This assures Aberdeen of a first class pulp mill within the next eight or ten months, according to those in charge of the work in Aberdeen."

Oregon City Paper Mill Improvements

The Hawley Pulp and Paper Company have started a program to improve and balance their Oregon City, Ore., plant. The initial program, including a new ground wood mill, a new 234-inch paper machine, new concrete finishing and warehouse buildings and additional boiler capacity, entails an expenditure of approximately $1,500,000.

The ground wood mill will have a completed capacity of 100 tons daily and will be completely electrified. Wood will be used in four-foot lengths, coming to the mill in cars, unloaded and measured in cord racks and handled to the grinders by a mono-rail system. The grinders are to be directly driven by 1,000 h.p., 2,300 v. synchronous motors, stopped and started by push-button control and arranged so that two grinders can be fed by one man.

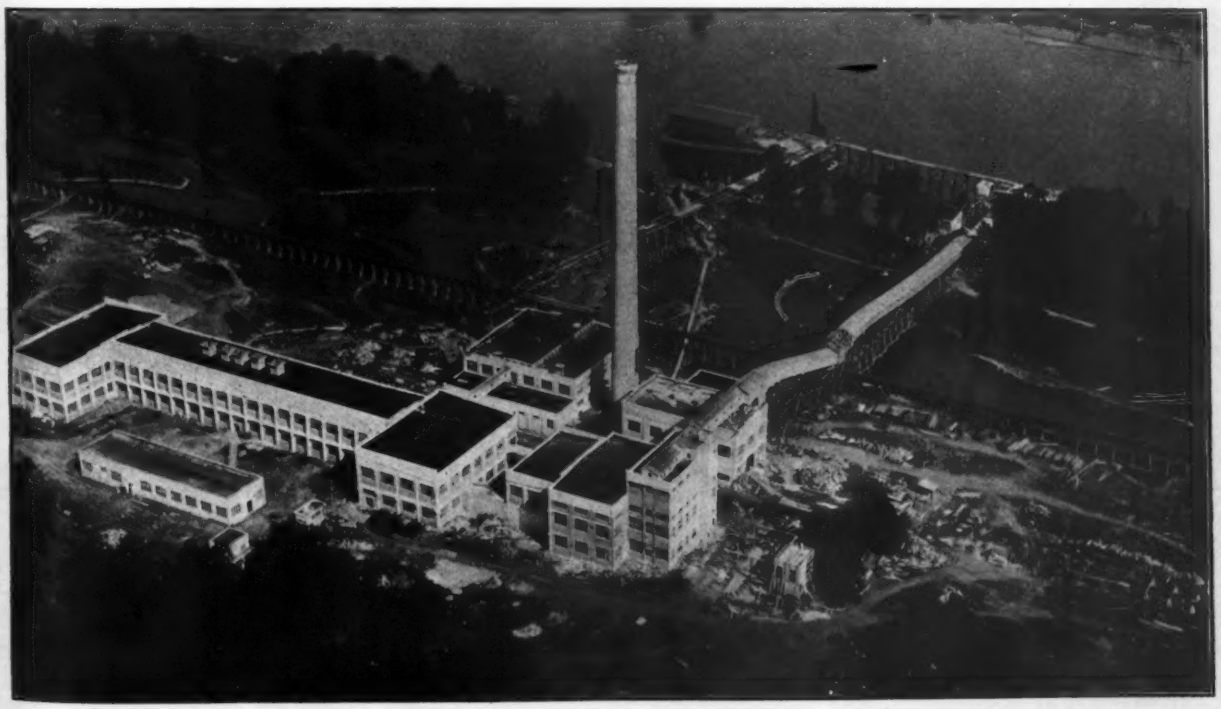
Unique features of the grinder operation are the installation of pressure regulators controlling the grinder pressure and at the same time maintaining a constant load factor on the mill as a whole, and an arrangement for a supply of low voltage, low cycle current so that the grinders may be turned slowly when sharpening stones.

The stock flows by gravity from the grinders, through a sliver screen, and into a tank and is then pumped to knotters, from which it flows by gravity to screens and deckers and to storage, a large portion of the screening being refined and returned into the system. White water is used for thinning water and showers. Two large 40-foot concrete storage tanks with screen pump agitation are provided in addition to stock tanks in the ground wood mill proper. The total slushed pulp storage capacity is 100 tons. The buildings are entirely of reinforced concrete construction.

The No. 4 Paper Mill is to be remodeled and the present machine replaced with a 234-inch machine, designed for a maximum speed of 1,500 feet per minute and equipped to produce 125 tons of news print daily. The machine is to be driven by a sectionalized motor drive and is provided with special equipment for turning over slowly when installing or adjusting wires and felts.

All stock will be automatically proportioned and regulated as to consistency. White water from the machine will be passed through Savealls and returned into the system. The machine will be provided with hoods to aid in drying and to eliminate condensation, the air supplied passing through fans and unit heaters and blown in along the roof.

The above are a few of the higher points of the installation which is designed to give ease of operation and maximum economies. A large finishing building and ample warehouse space have been provided directly alongside of the machine, and shipping tracks, minimizing handling and providing easy loading facilities.



KRAFT PAPER AND SULPHATE FIBER PLANT OF THE ST. HELENS PULP & PAPER CO., AT ST. HELENS, ORE.

Spaulding Pulp Co. Completes Sulphite Mill

First Unit of 170 Ton Plant at Newberg, Ore., Will Produce 50 Tons Daily of High Grade Sulphite Pulp—Mill Is Equipped Throughout With Thoroughly Modern Machinery—Ideally Located For Rail or Water Shipment

The first unit of the Spaulding Pulp and Paper Company's 170 ton sulphite mill at Newberg, Ore., is nearing completion. This will be a 50 ton mill producing only a high grade of pulp, using white fir, hemlock and spruce.

The mill is ideally located for either rail or water shipment, thus insuring ready delivery to home or foreign markets. Being adjacent to the Spaulding Logging Company's sawmill there will be an abundant supply of hog fuel, which will be fed to the boilers or to the 10,000 unit storage space by a system of conveyors.

The Boiler House

The boiler house is of steel construction throughout and houses the battery of two three hundred horsepower, 250 pound working pressure. Stirling type boilers, which are equipped with the latest design of Dutch oven adapted to the burning of either hog fuel or oil. A Cochrane feed water heater, Gardner feed pumps, and Copes feed water regulators are also features of the steam plant.

The wood room, a wooden structure on concrete foundation, is so situated that wood may be handled from the spur track, or logs from the river. In this building are located the 84 inch chipper and the four 60-inch disc barkers, furnished by the Valley Iron Works Company. The Woods Ideal chip separator and the shaker type chip screen furnished by Ryther & Pringle Company, are connected by conveyors designed for the most economical handling of wood. On the north end of this building is a Link-Belt continuous bucket chain elevator which conveys the chips to the storage on top of the digester building.

The Digester Building

The digester building, a wooden structure on concrete foundation, houses the two 15 foot by 49 foot Willamette Iron Works digesters which are equipped with the latest recording and regulating devices. The digesters will discharge into rectangular wooden blow pits of a capacity of two cooks each.

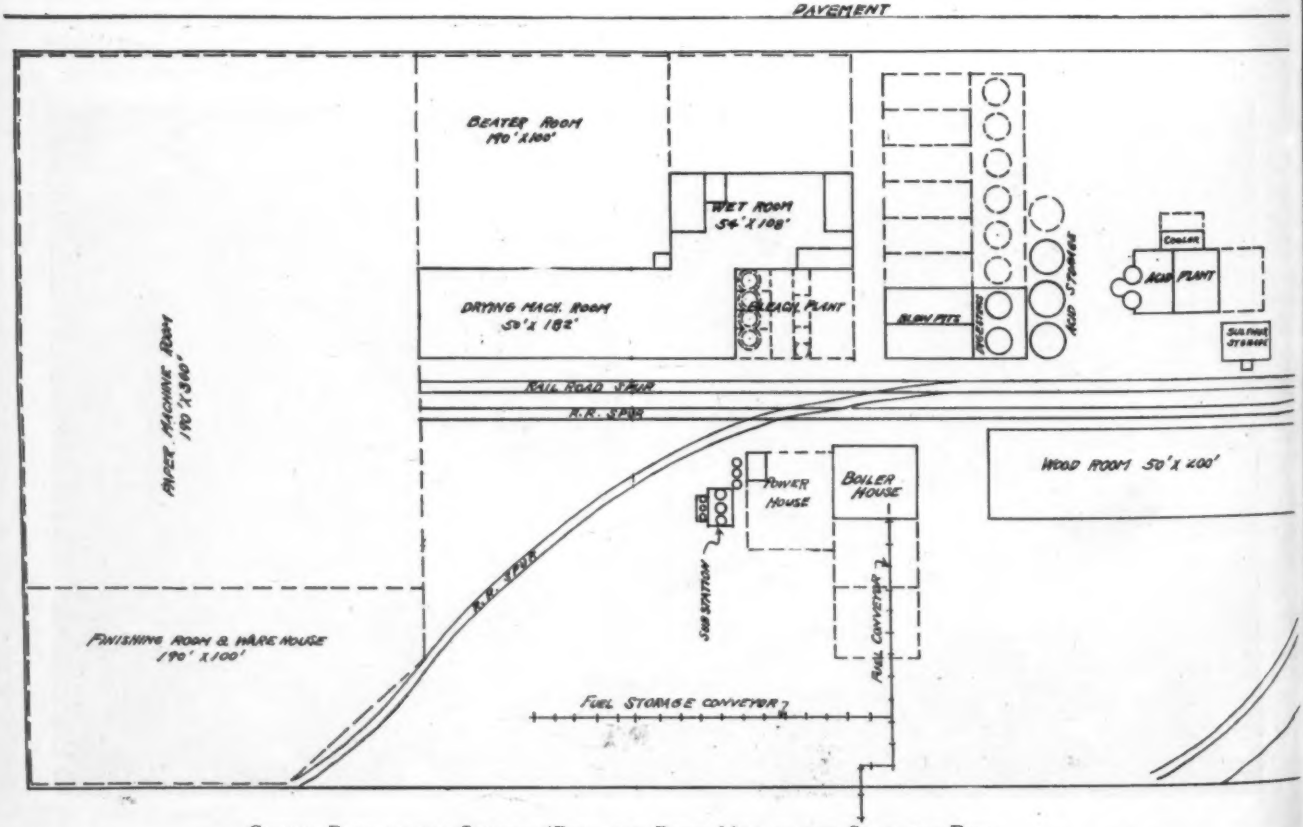
Jenssen Acid Tower System

The acid plant is equipped with the Jenssen Acid Tower System and is built of reinforced concrete for a capacity of 100 tons. Lime-rock and sulphur storage is provided adjacent to the acid plant.

The acid is stored in three wood stave storage tanks of 70,000 gallons capacity each.

The Wet Room

The wet room is of wood and concrete construction, the lower portion, including the screen room floor, being of reinforced concrete as are the stock and white water chests. The stock is conveyed from the blow pits to the wet room by gravity through a 12 inch pipe. The wet room equipment includes riffle boxes, a Baker Knotter, 16 Valley Iron Works flat screens equipped with Witham vats, an Oliver Decker, two double press wet machines, two 7 section Fidalgo pulp drying machines, and a horizontal



GROUND PLAN OF THE SULPHITE PULP AND PAPER MILL OF THE SPAULDING PULP

type pulp baler. All pumping equipment is of the Cameron and DeLaval direct connected centrifugal type.

The water necessary for the operation of the mill is pumped from the Willamette River by two 2,100 g.p.m. Byron-Jackson deep well pumps to a 5,000,000 capacity filter plant. This will insure an ample supply of clean water for present and future use.

Mechanical Equipment Electrically Driven

All mechanical equipment is individually driven by electric motors, geared speed reducers being used where required. Power is supplied to the mill through a 60,000 volt line direct to the paper company's substation where it is stepped down to the required voltages for use in the plant.

Mill Laboratory

The mill laboratory is completely equipped with adequate testing apparatus for control of the product throughout the process to insure a uniform and suitable sulphite pulp for the manufacture of high grade paper.

The mill was designed and the construction supervised by Ernest Schweitz, paper mill engineer.

Officers of the Company

The officers of the company are: Chas. K. Spaulding, president; J. C. Compton, vice president; Lynn B. Ferguson, treasurer; and Clarence Butt, secretary.

Willapa Pulp & Paper Mills Incorporate

Willapa Pulp and Paper Mills have been incorporated under the laws of Oregon with a capital stock of $1,000,000. The company has also filed additional articles in the state of Washington, where the proposed plant of the company will be located at Raymond, on Willapa Harbor.

Richard A. Swain is president of the company, whose financial offices are in the Pacific Building, Portland. Jay Bowerman is vice-president. Although the entire board of directors has not yet been announced, it is understood that Geoffrey Winslow and A. E. Barry of Seattle, are interested, and several other prominent Portland men.

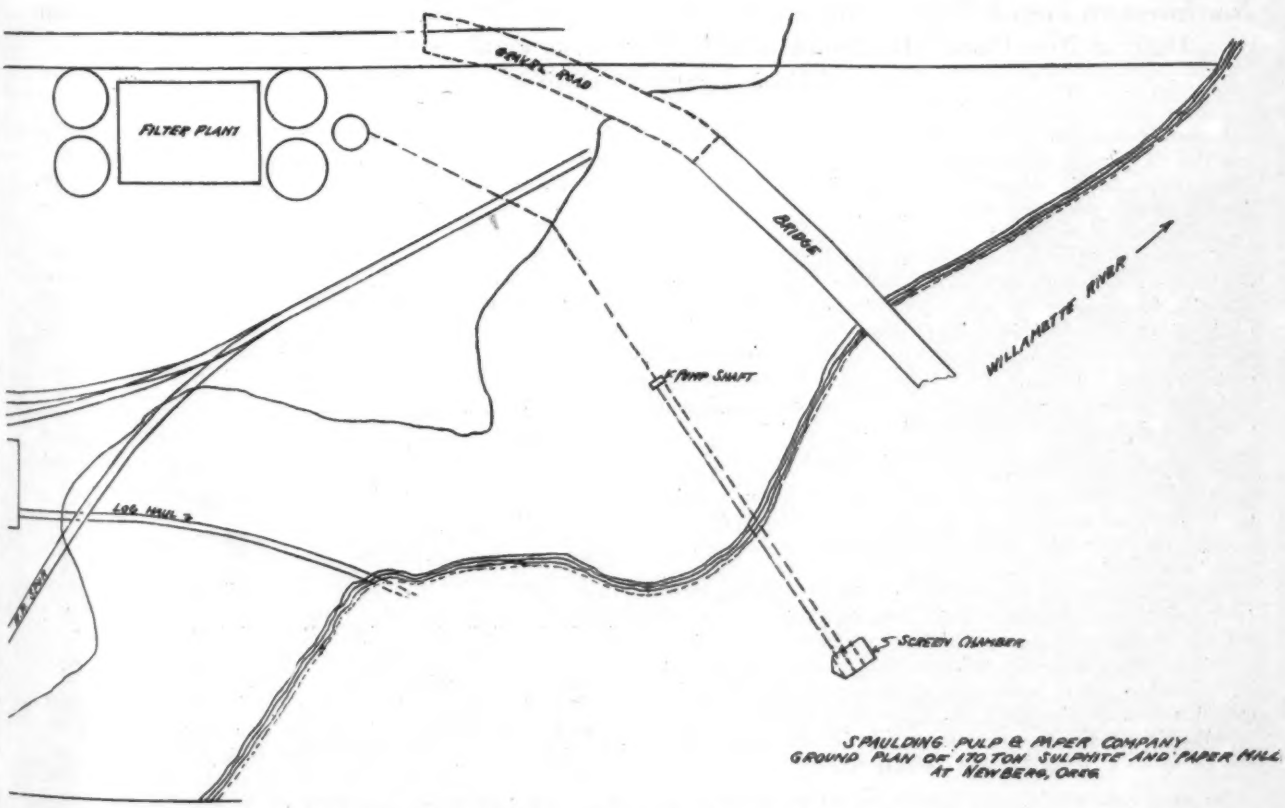
The company is advertising 3,000 shares of 7½ per cent First Preferred Stock of a par value of $100 each, preferred as to assets and dividends, each preferred share carrying a bonus of one share of no par common voting stock.

Preferred stock is to receive $7.50 per share before any dividends are paid on any other class of stock of the company, and to receive in full in case of liquidation or dissolution. $100 in cash per share together with unpaid dividends, before any other stock of the company shall participate in the assets of the company.

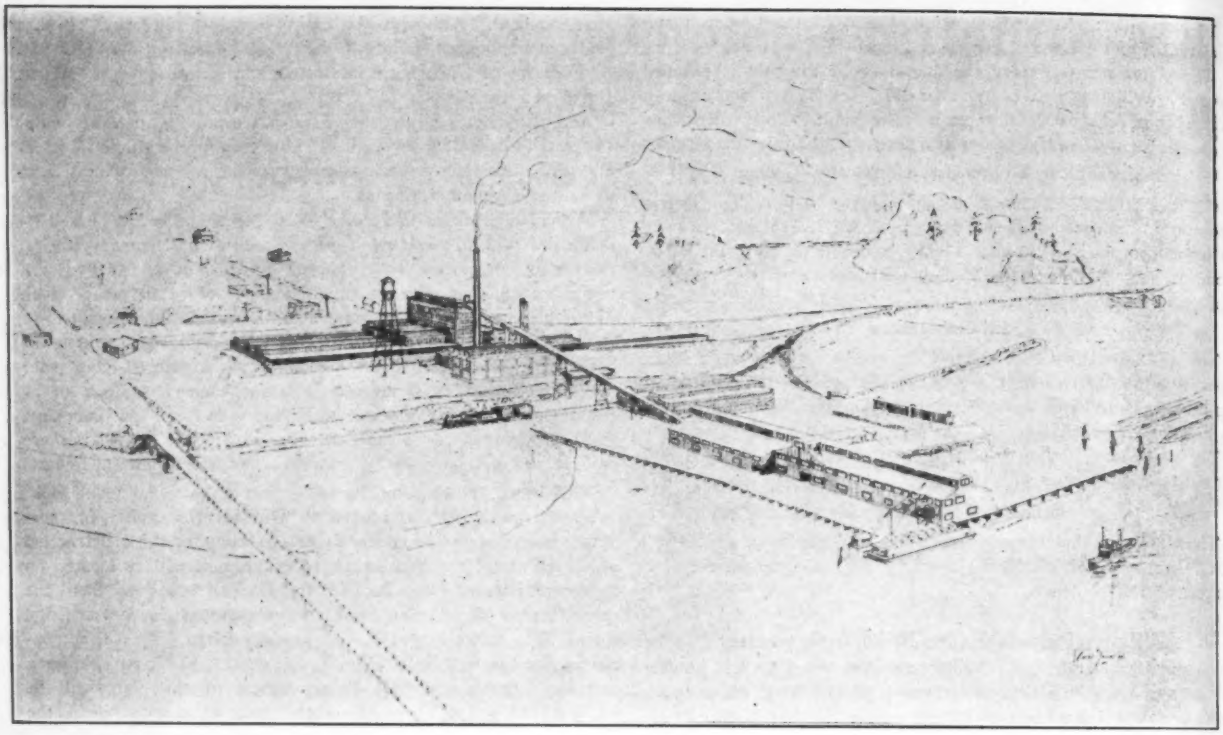
This preferred stock may be redeemed and is redeemable at the option of the board of directors upon not less than 60 days' prior notice to the holder of the record of such preferred stock, or by public notice, given as required by the bylaws of the company, at $105.00 per share of the par value of $100.00. Dividends are payable semi-annually and are exempt from present normal Federal Income tax.

The purpose of the stock issue is to furnish capital for corporate purposes, as the entire major financing for the construction of the pulp mill has been arranged. This mill will be located on 35 acres of water front land on the Harbor, one hour from the ocean, and with shipping facilities available to all parts of the world. The entire output of high grade sulphate pulp will be contracted for through Bulkley-Dunton Company of New York for a period of years, and the other products of the plant will be marketed to a large extent on the Atlantic coast and in the Orient.

The company has already filed water rights on Austin and Skidmore creeks, tributaries of the Willapa River, asking approximately three second feet from each stream.



& Paper Co., Now Nearing Completion at Newberg, Ore.



Modern Pulp Mill Being Erected at Astoria

Northwestern Pulp & Paper Company Will Manufacture 120 Tons of Unbleached Sulphite Pulp Daily at New Plant—By-Products Mill Also Being Built for Further Use of Waste Material From Logging Camps and Saw Mills

A modern new mill is being built by the Northwestern Pulp and Paper Company, of the Oregonian Building, Portland, Ore., on the site of the War Shipyards on Young's Bay, and will manufacture 120 tons per day of unbleached sulphite pulp. The plans show a number of interesting features.

In addition to five digesters, 16 feet diameter by 50 feet high, of about 14 tons capacity each, and the 150-ton Jenssen Acid System with the necessary rifflers, screens and drying equipment, the specifications called for boilers of 450 pounds pressure with steam turbines, to produce all of the necessary electric power to be used at the plant, the process steam to be extracted from these turbines at 125 pounds pressure and used for both cooking and drying in connection with a large Ruths Accumulator.

Buildings Conveniently Arranged

The buildings are so arranged that the side tracks run over the top of the sulphur warehouse and sulphur supply will be dropped from hopper bottom cars through hatches between the track with a minimum of labor.

In addition to the sulphite mill, there will be a by-products plant for the further use of waste material from the logging camps and saw mills of the district around Astoria and the latest up-to-date electrically driven saw mill, capable of cutting around 600,000 feet in three 8-hour shifts, will supply the pulp wood for the entire operation from the slab, inside trim, and the low grade lumbers, only the high grade clears and number ones being sold as lumber.

Plant Located on Side Hill

The site for the plant is on a side hill, and as the water supply comes from the high side, almost everything will be handled by gravity and a minimum of pumping equipment will be required.

The Fidalgo system of drying is included, and the product of the plant has been contracted to the Pulp and Paper Trading Company, of New York.

Vance P. Edwardes, for many years known to the pulp industry of America, is to be in direct charge of the plant as mill manager and general superintendent. The business of the concern will be handled through the management engineering office of B. T. McBain, 508 Oregonian Building, Portland.

Officers and Directors

The president, Charles Randlett Flint, of New York, is well known to the people of the country, and the other officers and directors are well known Atlantic and Pacific Coast business and professional men, as follows:

G. Clyde Fulton, attorney-at-law, Astoria, Ore.

Frank Patton, banker and capitalist, Astoria, Ore.

A. V. Allen, lumberman, Astoria, Ore.

B. T. McBain, consulting pulp and paper specialist, Portland, Ore.

W. M. Macphail, civil engineer, Portland, Ore.

Amedee M. Smith, banking and realtor, Portland, Ore.

C. W. Kind, executive, 120 Broadway, New York, N. Y.

Myron W. Robinson, director American Manufacturers Export Association, ex-president Crex Carpet Company, New York, N. Y.

Archimedes J. James, capitalist, New York, N. Y.

Daniel Mungall, attorney, Commercial Casualty Insurance Company, 128 William street, New York, N. Y.

H. C. Wechsler, vice-president, Scutan Company, manufacturers of waterproof paper, New York, N. Y.

C. S. Maltby, magnesite mining and calcining, San Francisco, Cal.

Robert T. Jacob, tax counsellor, Portland, Ore.

Charles W. Miller, assistant treasurer, O. W. R. & N. Co., Portland, Ore.

Lake St. John Mill To Start in December

H. A. Wallberg, president of Lake St. John Power and Paper Company, Limited, stated that the company is making rapid progress on the construction of its news print paper mill at Dolbec, Quebec. The railway extension of 29 miles to the mill has been carrying trains since September 11 last. The construction of the buildings and other heavy work will be completed within the next two or three weeks. The two paper machines are being installed, as well as the other equipment, and it is expected that the mill will begin to make paper in December of this year.

Last winter's cut of pulpwood is now mostly in the wood storage pile, and all of this quantity will be in storage before winter sets in, so that this wood will be used for operating the mill until the next season's cut becomes available. The company is preparing to cut 100,000 cords this coming winter also.

The Town of Dolbec, which was formed by the company, is progressing rapidly.

Taggart-Oswego Mill To Start in January

Operations will begin in the new plant of the Taggart-Oswego Bag and Paper Company, at Oswego, N. Y., about January 1, according to officials of the company, the product to be cement bags. New machinery for the Oswego mill is expected to be shipped during October. The bag making unit will be put in operation as early as possible but schedules will be arranged so as not to interfere with the production of cement bags at the Watertown and Herring plants.

Modern Sulphite Mill Planned for Aberdeen, Wash.

The Pacific States Pulp and Paper Company are planning to erect a hundred ton sulphite mill of the most modern type, at Aberdeen, Wash. The organization has entered into a contract with the City of Aberdeen for 7,000,000 gallons of water daily for a period of thirty years. Raw material supplies are already arranged for and the output of the mill is sold for five years.

The City of Aberdeen has just started work on its project to bring in 60,000,000 gallons of water for industrial purposes and it will probably take a year to complete this system. While the site for the building has been prepared, the Pacific Coast Pulp and Paper Company has started no actual construction work, it not being the intention to have the mill ready to operate before this water is available.

The officers of the Pacific Coast Pulp and Paper Company are as follows: President, H. L. Copeland; first vice-president, A. T. Petersen; second vice-president, George E. O'Bryon; secretary and treasurer, L. E. Van Winkle. There are two directors in New York City, but the majority of the board are residents of the State of Washington.

New Project Planned for Coquille, Ore.

It is reported that plans are under way for a pulp mill at Coquille, Ore., to use timber taken from the north fork of the Coquille River. C. McC. Johnson, formerly of Coquille, but recently of Eugene, is said to be interested in forming a company to sponsor the project.

Mr. Johnson was for several years engaged with Nonda Anderson in lopping pulp products on the Umpqua River to be shipped to the Crown-Willamette company at Oregon City.

A considerable stand of fir is located in the vicinity of the proposed mill and spruce also would be available for the pulp manufacture. The plant would be located it is thought near the E. E. Johnson Lumber company's plant, in order that cheap fuel might be obtained, although the pulp plant will not be connected otherwise with the lumber company.

RAINIER PULP & PAPER CO.'S PLANT AT SHELTON, WASH., HAVING A CAPACITY OF 120 TONS OF BLEACHED SULPHITE DAILY

New Sulphite Pulp Mill Planned for Tacoma

Northwestern Pulp & Paper Co. Installing Modern Plant With Initial Capacity of Fifty Tons Daily—Bleaching Plant May Be Added in Near Future—Large Tract Available for Paper Mill—Ideal Shipping Facilities Assured

One of the most important pulp developments on the Pacific Coast is that of the Northwestern Pulp and Paper Company, of Tacoma, Wash. The initial installation of this organization has been designed for a fifty-ton sulphite pulp mill, using 15 feet by 49 feet digesters; the Harmon Flat Screen; Blow Tanks thirty feet in diameter; and some form of shredded pulp dryer equipment, as this latter method of drying pulp seems to be meeting with rapidly increasing favor in the paper industry. The acid system is to be installed by the D. G. Jennson Company, and is designed for 100-ton daily capacity.

Railroad sidings and chipping facilities have been completed, and the chipper plant, equipped with Carthage chippers, Shaker screen and crusher is now in operation.

Attractive Permanent Buildings

The foundations rest on piling which have been driven down to a solid base, and on this will be placed the concrete slabs. Above this will be the hollow tile buildings and the timber frame will be covered with concrete stucco, making a very attractive and permanent building. All buildings are sufficiently large to permit of the installation of additional machinery and equipment to bring the plant up to 100 tons capacity daily.

A space has been reserved for the installation of a bleaching plant in the near future. South of the pulp mill the company has an option on a large tract which is available for the construction of a paper mill.

Directly east is the Hylebos Waterway, with twenty-one feet of water at low tide, and on the west side of the plant the shipping room opens on the tracks of the Municipal Belt Line, which gives through connection with seven transcontinental lines.

An artesian well eighteen inches in diameter has been put down for 850 feet, and is now flowing naturally over three hundred gallons a minute. A turbine pump will be installed which will provide up to three million gallons a day. The layout of the buildings provides for economical operation and enables the superintendent to supervise all operations in the most convenient way possible.

Organization Outlined

An outline of the organization of the Northwestern Pulp and Paper Company, of Tacoma, and the plans for construction and operation, is given in the statement by Vice President and General Manager William S. Dowd, which follows, in part:

"The first suggestion that a pulp development in the Northwest would be sound and profitable was made by one of the leading and most successful international pulp and paper mill consulting engineers. Following this suggestion, nearly a year has been spent in a thorough investigation of the pulp and paper industry in the United States, and the Northwestern Pulp and Paper Company was organized to take advantage of what is now considered as one of the outstanding industrial opportunities of the present time.

"It has been the thought of all connected with the company that the utilization of the waste from logging operations and saw mill operations in the Northwest would be profitable to the lumberman, and would furnish a suitable supply of raw material for the pulp mill at a moderate cost.

"In our investigation we have consulted with the following individuals and organizations: the directors and officials of five of the largest and most successful pulp and paper companies in the United States, four of the leading and most reliable sales agencies in the country, a large number of consulting engineers, the officials of several banks and investment houses, who specialize in financing the pulp and paper industry, many of the prominent manufacturers of pulp and paper machinery and equipment, all available sources of information of the United States Departments of Agriculture and Commerce, the records of actual operations of several pulp and paper companies. No stone has been left unturned in our investigations and research to make the operations of this company sound and therefore economical and profitable.

Wood Supply Ample

"The wood supply for raw material is to be obtained on contract or purchase agreement from several lumber companies located in Tacoma. These contracts or purchase agreements cover our requirements for hemlock, spruce and white fir wood, and the best posted authorities on the wood situation in the Northwest advise us that the quality of the timber in the holdings of these companies will provide the finest raw material it is possible for a pulp company to obtain, being light in color and strong in fiber strength. The operation is to be under the direction of Sigurd Norman, who has been employed as superintendent. He has had twenty years experience as a pulp and paper specialist in charge of construction, and production in Sweden and Norway, and in Brazil and the United States and Canada. He has been associated with the West Virginia Company, the Laurentide Company, the Munising Company and the St. Lawrence Company, and has the strongest of recommendations from all of them for ability and experience. He was brought to this country from Norway by J. H. Wallace, the well-known engineer of New York, as a member of his staff. He has developed and improved many of the methods that are now in use as accepted standards. Under his control there is no question that pulp of the highest standard quality can be produced, and with such pulp available, Perkins-Goodwin assure us of a ready market at all times and at the highest market price.

Machinery and Equipment

"The installation of all machinery and equipment is being conducted under the supervision of Mr. Norman, and includes only such types of machinery as have proved successful in the latest and largest pulp mill construction that has been done in the United States. No experimental machines are to be installed, and none which have not demonstrated beyond question their capacity to produce a high quality product. The building construction will be of the standard frame or mill type, with hollow tile walls, thus securing the maximum economy possible with the greatest strength and fire-proof construction. The piling has been driven for all foundations which have been designed for a mill of 100 tons capacity. It is desired, however, to get into operation on the basis of fifty tons at the earliest date possible, and then with the flexible construction and installation it will be a simple matter to add the additional units to increase the capacity to 100 tons, and a space has been reserved for the installation of a bleaching plant, as there seems to be a good demand for bleached pulp.

Perkins-Goodwin Co. Agents

"The sales arrangement with Perkins-Goodwin, of New York, takes care of the maximum capacity of either 50 or 100 tons. The usual arrangement with the better and most reliable paper mills guarantees the prompt movement without storage expense of the product, and places the cost to the consumer and the price to the manufacturer on a mutually fair and just basis."

Notable Additions Completed at Powell River

Big British Columbia Paper Plant Now Has Daily Capacity of 475 Tons of News Print—Recent Extensions Include Two New 232 Inch Machines With Separate Building—Two New Digesters Installed and Boiler House Unit Practically Doubled.

Extensions recently completed at the plant of the Powell River Company, Ltd., Powell River, British Columbia, brought the total capacity of the mill up to no less than 475 tons of news print daily. The recent developments comprise two new 232 inch machines with separate building, the addition of two digesters, practical doubling of the boiler house unit, grinder room, extensive additions in hydraulic and electric power, a new saw mill, addition to wharfs and town site. The original plant has four machines, two of 184 inch, one of 156 inch and another of 146 inch width.

While the older machines are belt driven, the two new machines are equipped with Canadian manufactured sectional electric drives and controls. A Ross Engineering vapor exhaust system takes care of the moisture problem on the new machines, their installation including the ventilators and economizers. Bird screens are used on these new machines. White water is returned to the ground wood screen room to be used there for showers. The new machines are equipped with a very efficient condensate removal system, designed by the company's engineers. Automatic back tenders, air appliances and a white water re-use system are also installed.

A Modern Machine Room Building

Designed by the Powell River Company's own engineering staff, the new machine room building is a mark of tribute to their ability. It is wide, long and high, very roomy and light and exceptionally well constructed. The equipment includes a traveling crane covering the full width of the room and capable of traversing the full length, thus making its lifting power available at any point in the room. A beater is installed for each machine to take care of the broke. Broke and trim is dropped through a hole in the floor near the calender into the basement, where the beaters are located.

The paper is rewound and cut into rolls varying in size up to 87 inches after passing through ten roll calenders at the end of each machine. Leaving the winders the rolls are wrapped, weighed and passed to the finishing room, where the roll ends are finished and the completed rolls finally weighed and marked. The rolls are then placed on specially fitted hand trucks, automatically upended for the trucker and wheeled on to flat cars, which convey them to storage or direct to ship-side as may be convenient.

Up-to-date Wood Preparation Plant

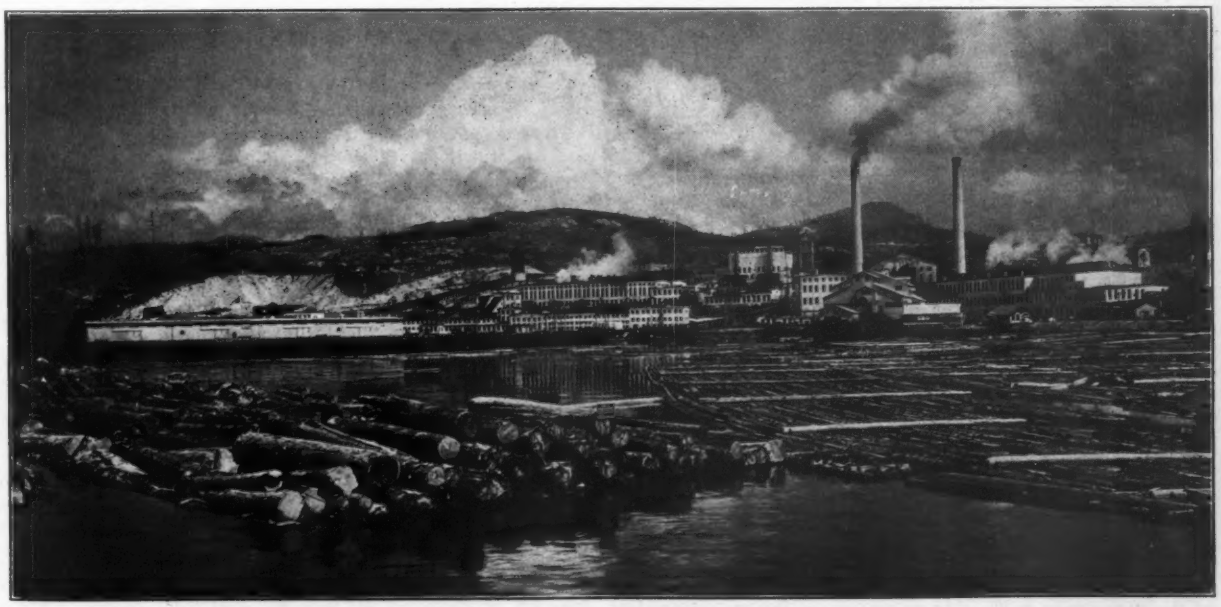
The extension involved the construction of a complete new saw mill, which is equipped with two band mills and all necessary auxiliary machinery in the way of edgers, slashers, wood and waste conveyors. This saw mill has a maximum capacity of nearly 1,000,000 FBM per day and was designed to meet the growing requirements of the company for some time to come.

The Barker Mill is equipped with six drum barkers and a battery of hand barkers and this building also accommodates the chip preparing plant, which consists of five 84-inch Carthage Chippers, Chip Breakers, Flat Screens and Sawdust Screens. Both Saw Mill and Barker Mill are equipped with Hogs, so that the waste material can be reduced to hog fuel and delivered to the fuel storage ready for consumption.

The digester equipment has been increased and the company now operates three 10-ton and two 15-ton digesters. These are completely housed in concrete buildings with chip storage bins of very ample capacity over the digesters.

The Sulphite Screen Room has been completely re-arranged and is now equipped with four knotters and twelve vertical screens. Thickening is by means of eight Sherbrooke deckers and an 8-Disc American Filter, the thickening being carried out in the screen room, where storage facilities are provided for about 4 hours total mill run. Thick stock is handled by pumps to the several machine rooms.

The company uses 32-inch wood and has 52 three-pocket grinders which are direct connected in units of from six to twelve grinders



POWELL RIVER CO. PLANT WHERE CAPACITY HAS BEEN INCREASED TO 475 TONS OF NEWS PRINT DAILY

MACHINE ROOM SHOWING NEW 232 INCH FOURDRINIERS

to water wheels. Of the latter there are four of 3,000 HP. and two of 5,160 HP. The latter, which were installed under extension plans, are provided with a very complete governing system by the Meyer Governor Company. With this system, very close speed and pressure control is maintained.

The ground wood screening plant is installed in a separate building and consists of 10 Sherbrooke knotters and 27 Waterous Quiller screens. The screen room is also equipped with a refining plant for dealing with screen tailings and with deckers for thickening the stock. In this screen room also, agitated tanks are provided for the storage of thick stock, which is pumped over to the machine rooms as required. A complete system of white water control has been installed so that all white water made in the process of thickening and also white water returned from the machine rooms is re-used.

Four Generating Units

In the hydro electric plant there are four generating units, one of which, the most recently installed, is a vertical shaft turbine, manufactured by the Dominion Engineering Works and having a rated capacity of 13,500 h.p., when operating under a head of 157 feet. It is designed to develop full power under a head of 178 feet. This turbine is direct connected to a Canadian General Electric alternator with an output of 12,000 k.v.a. at 2,300 volts, 3 phase, 50 cycle, which is equipped with a direct connected exciter having sufficient capacity to supply the whole of the generating plant. This unit is housed in a separate generating room and is remotely controlled from the main switchboard, being entirely automatic in operation.

The remainder of the generating plant consists of three horizontal shaft water wheels driving alternators which have recently been reconstructed so that they now generate at 2,300 volts, 3 phase, 50 cycle. One of these machines has a capacity of 3,750 k.v.a., the other two of 2,800 k.v.a. each. The whole of the switching equipment of the generator plant has recently been built over and all of the main generator switches, as well as the feeder switches for the various parts of the mill, are now housed in a separate concrete building. All of these switches are remotely controlled from a benchboard located in the main generator room. Distribution is, in general, at 2,300 volts and all new motors, above fifty horsepower, are arranged for this voltage. At various points around the plant, there are located transformer stations, where the voltage is stepped down to 550 for small motors and motors of the original installation. Other transformer stations step down the current required for lighting to 220 and 110 volts.

Auxiliary Machinery Installed

The operation of a mill of this size involved a considerable amount of auxiliary machinery. In the various finishing rooms there are installed re-winders which are used to make over rolls which have been damaged in shipment or handling. There are two sheet cutters which turn out paper for use in flat bed presses. Each of these cutters is equipped with a mechanical contrivance called a "lay-boy" for stacking the sheets, an operation which was once carried out by hand. There is a 100 ton hydraulic press, complete with pump, which is used for compressing bales of sheet paper for shipment, two machines for making cardboard cores on which the rolls of paper are wound and roll grinding machines which are kept constantly at work trueing up the steel, gun-metal, granite, wood and rubber rolls of the various paper machines.

The company also maintains a complete repair plant, including a machine shop and foundry, a smithy, acetylene welders shop, car shop and carpenter shop. A planing mill of fair size, complete with dry kilns, lumber yard and storage sheds, is maintained to provide necessary material for the mill and for town site construction. The company owns and operates a limestone quarry at Marble Bay, on Texada Island, which supplies the limestone required for the manufacture of acid.

Adequate Wharfage Facilities

Excellent wharfage facilities comprise two piers which provide berths for ocean going vessels. The piers are equipped with storage warehouses in which a total of 6,000 tons of paper can be held for shipment. There are two marine elevators for use in loading scows and steamships having side loading facilities and there is also a thirty ton electric crane which is used in handling

machinery, lime rock, coal, etc. The wharf and mill is provided with a complete three foot gauge track system and the rolling stock includes four electric storage battery locomotives.

Water power resources available for the Powell River mill are practically inexhaustible. Powell Lake begins less than half a mile from the sea and runs back into the mountains for approximately thirty miles, draining a snow fed watershed embracing 500 square miles. Either flowing into Powell Lake or easily tapped for hydraulic purposes are other lakes, making the total water reserves practically limitless. A dam constructed at the lower end of the lake provides a normal head of 166 feet.

For direct propulsion of machinery and for hydro electric use, four penstocks have been built. Two of these penstocks are 11 feet 4 inches in diameter, one is 10 feet 9 inches, and the latest one, built for additional power requirements of the new extension is 14 feet in diameter.

Additional storage for paper is provided by two storage sheds, one of which recently constructed has a floor area of 44,600 feet and can accommodate 8,000 tons of paper. This warehouse is of concrete construction, fully protected against fire, equipped with three loading tracks and facilities for the use of revolvators and traveling crane for the stacking of paper.

New Boiler House Described

Five years ago it became necessary to consider very extensive replacements in the old steam plant and in anticipation of further extension, the Powell River Company at that time decided to commence the construction of an entirely new plant and plans were prepared by Charles C. Moore & Co., engineers, which provided for immediate and future requirements.

The first unit of the plant was completed in 1923 and consisted of about one-third of the whole plant and the second unit was added last year to provide for the increased production. The steam plant is now equipped with six batteries, each of two 490 HP. B. and W. boilers and space is provided for the installation of three further batteries.

Each boiler is equipped with a Dutch oven for the burning of wood refuse or hog fuel and in addition, has three B. and W. mechanical atomizers of the modified San Diego type, enabling it to be run on oil fuel. Further provision is made for the possible future use of coal either with mechanical stokers or as pulverized fuel.

Every boiler has its own CO_2 recorder, flue gas temperature recorder, draft gauges, and all other appliances necessary to secure the most economical operation. Fuel is handled entirely automatically and ashes are discharged automatically through special hoppers built under the Dutch ovens, to a waste flume which carries them out to sea. Draft requirements are taken care of by two 250-foot concrete stacks.

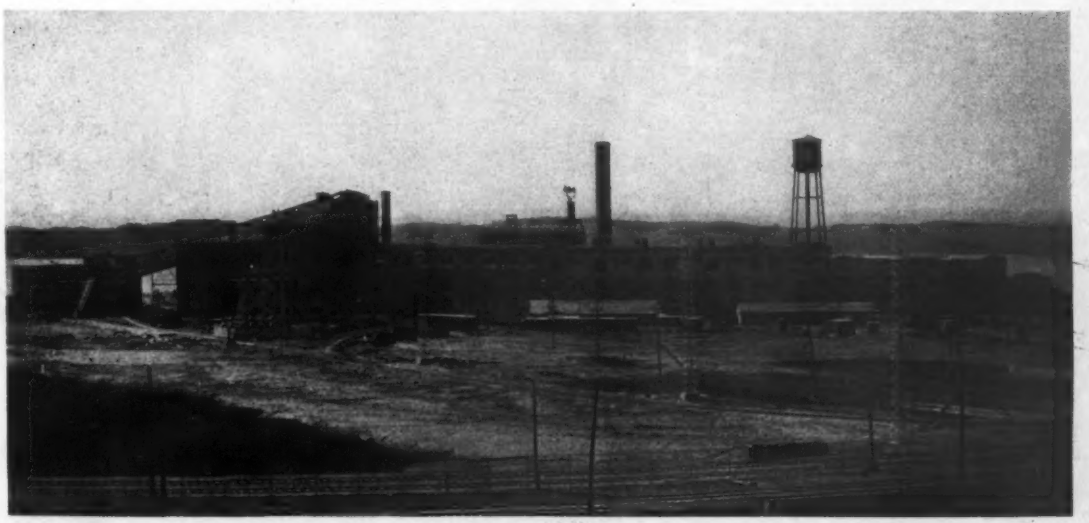
There is also installed in the boiler house a 5,000 KW. Electric Steam Generator, which is used when surplus energy is available from the hydro-electric plant and also used to carry the Sunday load, which consists of mill heating and certain auxiliary steam engines.

Up to Date Conveyor System

Fuel is brought into the boiler house by two conveyors, one serving each row of boilers. These are of the two chain wooden flight type operating in steel troughs, fitted with steel wearing strips and supported by structural steel truss members carrying both top and returns conveyors flights. Fuel is carried on the top flight and fed to the boiler hoppers through gates controlled from firing deck and enclosed steel chutes. Any surplus of fuel brought into the boiler room is returned to the outside storage on bottom runs of conveyor. The apparatus and chain was all furnished by Link-Belt-Meese Gottfried Company. The chain used is made up of drop forged links, having high tensile strength; flights are hard wood 8 in. by 30 in.—motors are Canadian General Electric driving conveyors through Sykes Tooth Link Belt speed reducers.

Officers of the Company

Dr. D. F. Brooks, president of the Powell River Company, who is a well known and respected figure in the paper industry, possesses an enviable reputation as a Pacific Coast pioneer. Other capable officials are: M. J. Scanlon and S. D. Brooks, vice presidents; Anson S. Brooks, treasurer; A. E. McMaster, general manager; W. B. Zumwalt, general superintendent; R. Bell-Irving, mill manager; Joe Falconer and R. H. Scanlon, assistant mill managers, and P. Sandwell, resident engineer.



Courtesy News Print Service Bureau.

NEW PLANT OF THE STE. ANNE PAPER COMPANY, LTD., AT BEAUPRE, QUEBEC, WHERE TWO 234-INCH MACHINES ARE NOW IN OPERATION

Tumwater Paper Mills Co. Begin Operation

New Sulphite Wrapping Mill at Tumwater, Wash., Starts Production Oct. 15—Plant Constructed for Two Paper Machines, the First One a 134 Inch Beloit Fourdrinier—Mill Is Ideally Located and Is Headed by Experienced Men

The Tumwater Paper Mills Company's new plant at Tumwater, Wash., started production October 15, manufacturing a full line of sulphite wrapping papers. The main machine room was constructed to care for two paper machines, the first one, a Beloit Fourdrinier 134 inch, driven by Terry Constant and Variable Speed Turbines, being installed.

The Refining Room

Four 2,000 pound and one 1,500 pound Dilts Beaters, Jones Majestic Jordan, Imco Primary and Knotter screens and wet machines are located in the pulp refining building.

Finishing Room

A most complete finishing room adjoins the machine room. Warehouse and shipping room tie into the finishing room. A fully equipped machine shop is in the basement of the finishing room.

Sulphite Building Ready

While no sulphite pulp is to be manufactured at this time, the building is ready. A complete ground wood plant, with wood room, has been installed. The boiler house is to care for a two machine installation, equipped for either oil or hog fuel. All buildings are reinforced concrete steel and brick.

Pure Water Supply

Pure water, which is so essential in the manufacture of first quality papers, is taken care of by an artesian water supply from a 24 inch well, 104 feet deep. The flow is in excess of 2,000,000 gallons per day and is considerable more than is required for the first units.

At the head of the small bay in the picture is a power plant from which the mill will receive all their electricity for running various units of the mill. Also water is available to the mill at the overflow of the dam of the water power company. The bridge in the foreground is a roadway for a truck entrance to the mill and also carries tracks of the Northern Pacific Railway. The railroad tracks on the left of the mill are those of the Union Pacific Railway Company, thus giving the mill the outlet of two transcontinental lines. At the extreme left of the mill is an artesian well from which water supply will be furnished for making paper. This water is absolutely pure and clean and will enable the mill to branch out into many lines of paper manufacture. Immediately in front of the mill is a wharf for handling shipments to be made via water and gives the mill water shipping facilities as well as rail.

Experienced Men at Head

The men at the head of the Tumwater Paper Mills are all experienced paper men and have been in the game many years and understand the business thoroughly.

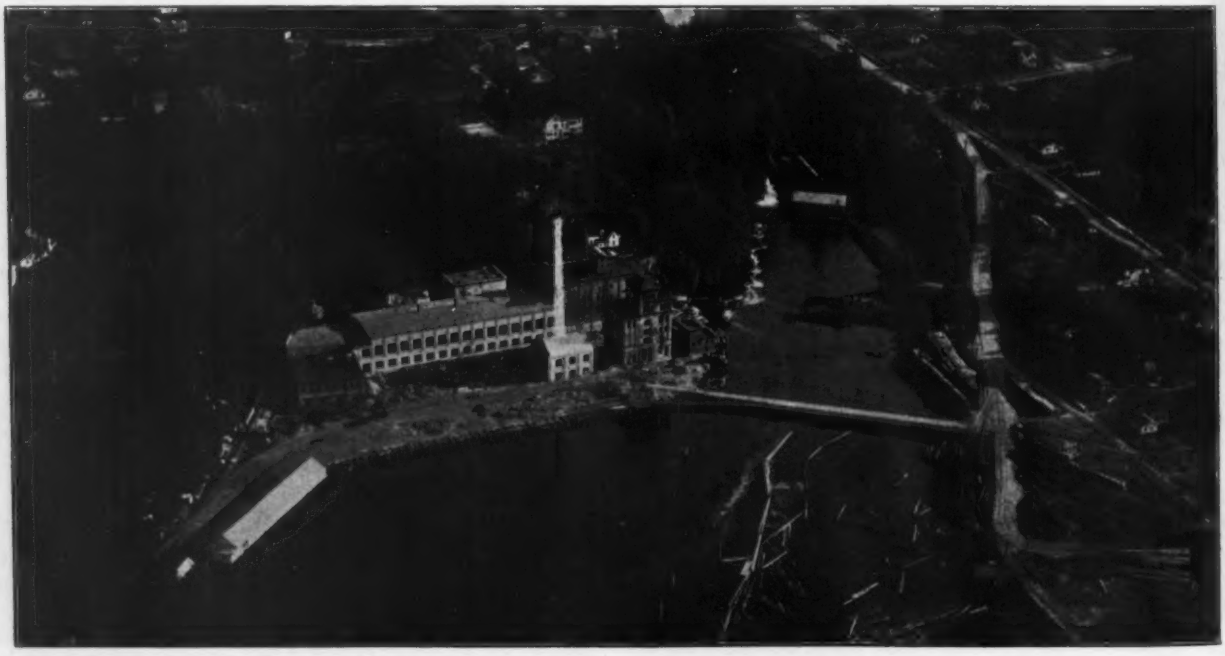
The officers of the company are: T. Osmund, president and general manager; W. H. Trindle, vice-president; R. L. Shepherd, secretary-treasurer; W. C. Moore, assistant secretary-treasurer, and P. J. Vernig, superintendent.

Transportation Requirements

The plant's transportation requirements are adequately taken care of by the Northern Pacific and Union Pacific Railways, auto truck roadways, and 400 lineal feet of gridirons, 40 feet wide, in the DesChutes waterway for the accommodation of barges.

Sales Representatives

The Johnson-Lieber Company, of Portland, Ore., have been appointed sales representatives, with offices in Portland, Seattle, Tacoma, Spokane, Washington, Boise, Idaho, San Francisco and Los Angeles, Cal.



PLANT OF THE TUMWATER PAPER CO., WHICH BEGAN OPERATIONS OCT. 15

New Pomona Mill Operating at Full Capacity

Modern Plant of California Fruit Wrapping Mills, Inc., Producing Nine Tons of Tissue Wraps Daily for Oranges and Lemons Exclusively—Incorporation of Mechanical Conveyors Saves Much Labor—Buildings Advantageously

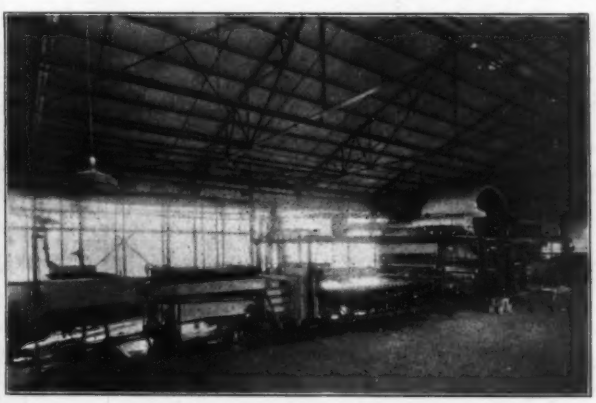
Now operating on a full production basis, the new plant of the California Fruit Wrapping Mills, Inc., at Pomona, is turning out nine tons, 18,000 pounds, of tissue wraps each working day. These wrappers are being manufactured and printed at this new mill to be used exclusively on California oranges and lemons, and in order to produce the quantity needed by its customers it is necessary to operate the mills 24 hours a day. This means a production of 100 linear miles of paper each 24 hours. The first year's production will run, it is estimated, about 3,000 tons, or 6,000,000 pounds, and if this output is obtained it will be an excellent showing for the first year's operation, and in a mill the construction on which was not begun until last June, 1926.

Modern Equipment

The very modern machinery with which the mills are equipped was made by Atkiebolget, Karlstads Mekaniska, Werkstad, Karlstad, Sweden, and is declared by Alfred Ortendahl, chief engineer of the company who came to California from Sweden to install the equipment and get it in running order, to be the latest and most efficient known. Much labor is saved through the incorporation of mechanical conveyors which carry the pulp from point to point as desired without the application of hand labor, and but nine men are required to supervise the operation of the machines from the time the pulp enters the hopper till the finished wrapper issues at the other end of the long building.

Pulp from Sweden

Pulp used in the manufacturing processes also comes from Sweden in heavy sheets measuring approximately 24 to 30 inches,



VIEW IN MACHINE ROOM

being brought by water to San Pedro, from where it is quickly hauled to the Pomona mill to be shredded and processed, till after a period of fifteen minutes it comes out a finished roll 120 inches wide. After printing, the wrappers are made into sizes measuring 9 by 9 inches, 10 by 10 inches, and 11 by 11 inches, or whatever sizes are required. The only product which the company will make outside of the regular run of fruit wraps is some heavy wrapping paper for their own use in shipping their products.

Structures and Building

Erection of the structures and building of foundations which house the California Fruit Wrapping Mills, Inc., was done by the Union Iron Works of Los Angeles. The work was begun in June, 1926, and production in the mills was begun November 12, 1926. The buildings are advantageously placed on a five-acre tract at the western boundary of Pomona, and the main structure, of steel frame construction with exterior of corrugated iron, measures 81 by 270 feet in size.

Boiler House

There is a boiler house 24 by 40 feet, a pump house and tank, as well as an attractive office building, detached from any of the other structures. A machine shop is later to be erected. The grounds have been graded and landscaped with ornamental shrubs.

CALIFORNIA FRUIT WRAPPING MILLS

Already the grounds present a pleasing appearance, but in a year's time they will give an even better impression.

Water Facilities

In order to provide ample water, a well was drilled 324 feet deep, and has a capacity flow of 1,400 gallons a minute. Pressure is obtained from a 50,000 gallon tank erected at a height of 125 feet. An investment of $525,000 has already been made in the plant. It has booked orders for citrus wrappers equivalent to its entire output for a term of five years. While plans for installing another unit have been discussed many times, no definite action has been taken in that regard as yet.

Officers of Corporation

The officers of the corporation are: F. O. Fernstrom, president; Eric Fernstrom, vice-president; and F. G. Fernstrom, secretary and treasurer. Directors: F. O. Fernstrom, chairman; F. G. Fernstrom; Horace Miller, president, Union Iron Works, Los Angeles; Louis Benoist, Los Angeles manager, Dillon, Reed Company of New York; J. Guerrin, attorney at law, Pomona; and Erik Fernstrom.

Storage Rooms Damaged by Rain

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., October 22, 1927.—Property damage estimated at $3,000 was sustained by the International Paper Company at the South Glens Falls Mill as a result of water entering the storage rooms during the recent heavy rains when leaves and other obstructions clogged the catch basins in the vicinity of the mill. As a result the I. P. Co. has requested the South Glens Falls village officials to make improvements in the drainage system near the mill to prevent a repetition of the trouble. The improvements will, it is expected, be made immediately.

GATINEAU PAPER MILL
UNDER CONSTRUCTION
FOR
CANADIAN INTERNATIONAL PAPER COMPANY
BY
FRASER-BRACE ENGINEERING CO LIMITED
Scale
RIVER
OTTAWA
Coal Pile
Boom Room Conveyor
Sulphite Wood Conveyor
Hull · & · Montreal · Highway
FLOW SHEET of PROGRESS CHART
OF THE CONVERSION OF
WOOD TO NEWS-PRINT
LIST OF STRUCTURES
1 Sorting Boom
2 Log Hauls
3 Slasher Bldg.
4 Barking Drums
5 Wood Piers
6 Wood Piles
7 Clipper Bldg.
8 Chip Conveyor
9 Lime Rock Storage
10 Sulphur Storage Tanks
11 Acid Towers
12 Gas Cooler Bldg.
13 Sulphur Burner Bldg.
14 Acid Storage
15 Digester Bldg.
16 Blow Pits
17 Sulphite Screen Room
18 Mixing & Thickening Room
19 Electric Boiler House
20 Boiler House
21 Ground Wood Screen Room
22 Grinder Room
23 Ground Wood Stock Tank
24 Pipe Tunnel
25 Bus Tunnel
26 Machine Rooms
27 Finishing Rooms
28 Shipping & Storage Bldg's
29 Train Shed
30 Roll Grinder Room
31 Machine Shop & Carpenter Shop
32 Secondary Transformer House
33 Wrapper Machine Room
34 Stock Room
35 Office Bldg.
36 Main Transformer House
37 Water Tank
38 Filter Plant
39 Boiler House
40 Coal Preparing Plant
41 Switch Room
Logs from Outside Timber Limits
Pulp from Outside Timber Limits
Logs from Gatineau Limits
Conveyors
Loss
4' Wood
Chips
Acid
Sulphite Pulp
Gtd. Wood
Paper Stock
Paper
Limestone
Sulphur
Gas
Coal
Steam
Electricity
CONVEYORS USED IN THE ABOVE DIAGRAM
PRESENT MILL BLDGS.
FUTURE

I. P. Co. Starts Immense Plant at Gatineau

Mill Is Equipped With Four 256 Inch Fourdriniers and All the Most Up-to-date Auxiliary Machinery—World's Largest Single Producers of News Print Having a Total Capacity of 600 Tons Daily—Buildings Cover More Than Ten Acres

The Gatineau mills of the Canadian International Paper Company are perhaps the most modern mills on the American continent today, equipped with the latest inventions for the manufacture of pulp into news print. The Gatineau mill is located on the Ottawa River, about five miles below the City of Ottawa and two miles below the confluence of the Ottawa and Gatineau rivers.

First Unit Completed

The first unit of the mill, recently completed, contains four paper machines designed to produce a sheet of news print paper 256 inches wide at the rate of 1,200 feet a minute. These machines have a capacity of 600 tons of paper a day and are the largest single producers thus far installed in the world.

The mill has been designed so that its capacity may be increased if and as conditions warrant. The first paper machine began production on April 14, the second on May 19, the third on June 28, and the fourth on August 19.

In the valley of the Gatineau River the company has assembled 6,500 square miles of timber lands. It is estimated that these timber lands contain a perpetual supply of wood for the Gatineau mill. All of the pulp is water driven to the mill.

Adequate Power Systems

Power furnished to the Gatineau news print mill is supplied by the hydro-electric plants of the Gatineau Power Company. These developments are within seven miles of the City of Ottawa.

The Chelsea plant is designed for an ultimate installation of five units of 34,000 horsepower each, and operates under a head of ninety-six feet. The dam is 1,600 feet long and one hundred feet in height. The height of the power house is about one hundred and sixty feet. The dam backs the river up a distance of twenty-six miles to the tailrace at Paugan Falls, impounding about 440,000,000 cubic feet of water.

The Farmers hydro-electric development is 7,000 feet downstream from Chelsea and backs the water up to the tailrace at Chelsea. The powerhouse is designed for five units of 24,000 horsepower each, and operates under a head of sixty-six feet. The total length of the dam at Farmers, including spillway, powerhouse sections and wing dams, is 4,800 feet and its maximum height is seventy-five feet. The Farmers plant operates in parallel with Chelsea, power being generated at 6,600 volts and stepped up to 110,000 volts for transmission.

The Paugan Hydro-Electric development is twenty-six miles above the mouth of the river. The dam which is being built below the falls will back the river up a distance of thirty miles, submerging nine falls and rapids and creating a head of one hundred and thirty-six feet. The Paugan plant is designed for eight units of 34,000 horsepower each. The power will be generated at 6,600 volts and stepped up to 220,000 volts for transmission.

By combining the operation of the Chelsea, Farmers and Paugan developments into one system, it will be possible to utilize to the best advantage the total fall in the river for a distance of sixty-two miles from its mouth and to develop at least two-thirds of the available power in the whole river. The storage provided by the lakes created by the Chelsea and Paugan dams will assist materially in the regulation of the system and should eliminate all possibility of trouble from ice.

Construction a Large Undertaking

The Gatineau paper mill was constructed by the Fraser-Brace Engineering Company, Ltd., contracting engineers, of 83 Craig street West, Montreal. This organization is also in charge of the construction of the Farmer's Rapids Development, Chelsea Falls and Paugan Falls developments. The construction of the mill is a large undertaking. The buildings cover an area of more than ten acres and in their construction was required two hundred thousand cubic yards of excavation, sixty-five thousand cubic yards of concrete, eight thousand tons of structural steel and six million bricks. Many auxiliary machines, electric motors, etc., are in use as well as miles of water-pipe and steam and air lines. The electric motors, paper machines, and all other equipment of the mill are of Canadian manufacture.

The equipment of the Gatineau mill includes a wood slashing and wood barking plant, a ground wood pulp mill, a sulphite pulp mill, news print and wrapping paper machines, and accessory equipment. Pulp wood logs floated directly to the mill are manufactured there into finished rolls of news print.

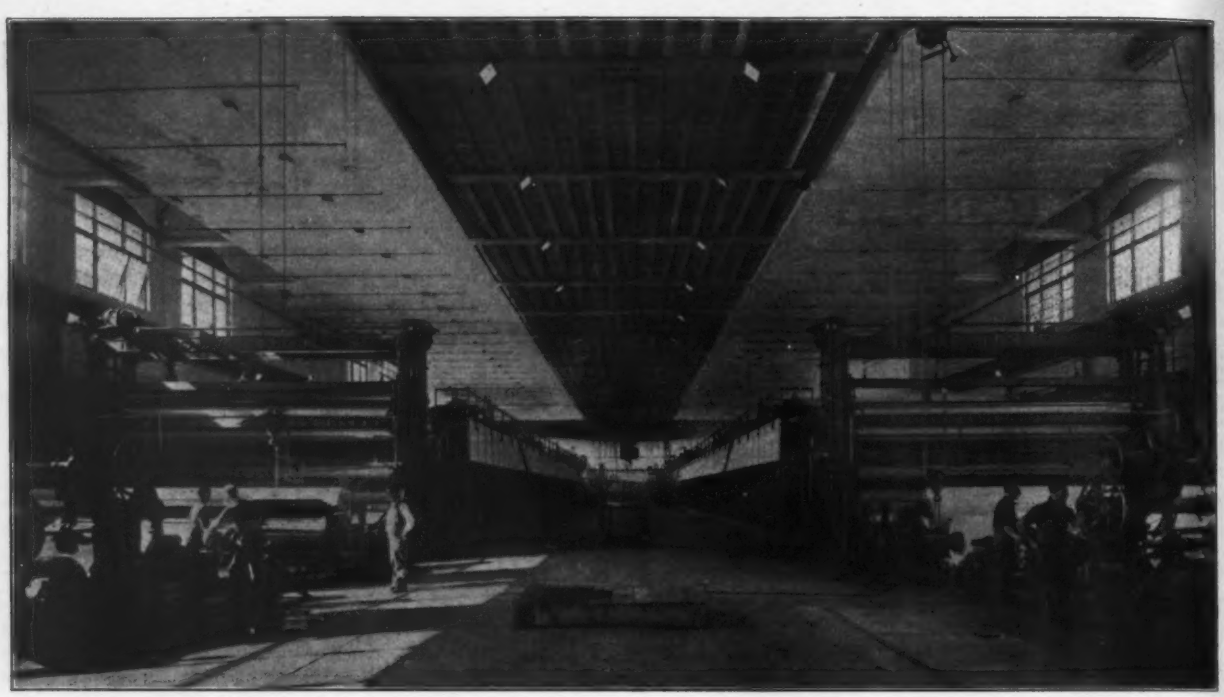
Pulp wood cut on the timberlands of the company, up the Gatineau River, arrives at the Gatineau mill and is barked and piled for use. The wood required by the mill is floated all the way from the forests where it is cut.

Modern Filtration Plant

A notable feature of the Gatineau mills is the modern filtration plant which the Canadian International Paper Company has installed, which not only provides a supply of pure drinking water for the plant employees, but also the new village of Gatineau.

The river water comes into the plan and runs over settling beds and passes over one-quarter mesh wire screens, and then passes to the rifflers. The impure water goes through the pipes to be used in the mills, while the pure is pumped into the mains of the plant for drinking water supply and for the town.

PLANT OF THE CANADIAN INTERNATIONAL PAPER CO., JUST STARTED AT GATINEAU, QUE.



TWO OF THE 256 INCH FOURDRINIERS AT THE GATINEAU PLANT

The plant has a capacity of twenty million gallons and can supply a population of 5,000 persons. The filtration is by sand, charcoal and slight chlorination, not enough of the latter being used to discolor or make the water taste.

Violet Ray System

Finally the water passes through a "Violet Ray" system, where the last remaining—if any—minute pollution mediums are obliterated.

Three Cameron pumps are used and a feature is the wood-stave pipes instead of the ordinary cast-iron pipes. Something unique is also the four big "traveller screens," which catch impurities in the water, they being the first of their kind to be used in Canada.

Network of Conveyors

Pulp logs come into the big plant from the river drives and are caught on travellers, cut into four feet lengths, and carried to the big six barking drums, where the bark is removed and they are cleaned.

Conveyors, a regular network of them, then carry the pulp logs to different parts of the huge plant. Some go to the storage piles, with their capacity of 200,000 cords, others to the sulphite mills, where they are converted into chips by six cutting machines.

Some of the logs are not properly cleaned by the barking drums, and before they reach the chipper machines they are pulled aside and dealt with by hand, as nothing but the pure wood may go to the making of sulphite pulp, an important component part of modern news print.

The chips go on long travelling progressive trays to the digester, which is, as its name implies, a machine for converting the chips into a mash, into which they are fed from storage bins over them. There are five 11-ton digesters in this plant, and they cook the chips into sulphite.

Big Battery of Grinders

From the digesters the product of the pulp log goes to the mixers, where the chemicals and dye, etc., are mixed with the chips and the sulphite is made. The mill is equipped with twenty-four grinders, or two "twelve lines." There the pulp is cleansed from its impurities by passing over various wire mesh screens called "knotters," which take out the coarse matter.

Then it goes to the settling beds and from there to the deckers. Before the pulp is ready for the paper-making machines it has to be treated in the "trimble mixer," where it is merged with a mixture of sulphite, coloring and alum.

Great Paper Machines

The big paper machines are really wonderful machines, stretching the entire length of the long machine room, in a series of forty-six dryers, where the cleansed pulp, and its parts supplied in the mixing room, go over screens and rolls, brass and granite, to be thickened to paper consistency, and then the moisture successively dried out of it, it emerges at the end of the long succession of dryers, as news print paper.

Efficient Sulphite System

The plant has its own sulphite system, and the transformer room receives and then distributes the electrical energy received from Chelsea.

Pulpwood Storage

Something surprising is the orderly neatness in which the plant officials have arranged their pulp wood storage, each of the 16,000 cord piles being tapped by conveyors and the whole in the storage area being protected from fire by constant sprayers, while there are eight hydrants, and the plant has a very efficient volunteer fire department.

New Village of Gatineau

The Canadian International Paper Company, in order to encourage community building and progress, has supplied the new village of Gatineau with a church, a school, has built roads and also houses, which are rented or sold to the employees, who are also permitted to become stockholders of the company if they so desire. In a few years the village, or perhaps town, of Gatineau, modern in every respect, will stand as a tribute to the enterprise of the Canadian International Paper Company.

First Arkansas Paper Mill Nearly Completed

Construction of New Kraft and Pulp Plant of Southern International, at Camden, Ark., Rapidly Progressing—Will Probably Begin to Operate by February, 1928—Modern Mill Will Have Capacity of 165 Tons of Kraft Paper Daily

Such rapid progress has been made on the construction of the Camden, Arkansas, kraft paper and pulp mill, that it is expected the plant will be completely finished and in operation by the end of February, 1928. When it is remembered that the work was only commenced on March 7 last, the wonderful progress made will be appreciated.

This modern plant has been constructed for the Southern International Paper Company, all of the stock of which is owned by the International Paper Company, New York. The new mill will have a capacity of 165 tons of kraft paper a day. Camden is at the head of navigation on a tributary of the Mississippi River and is located on three railroads and on a convergence of highways. The mill is the first pulp and paper mill in the State of Arkansas.

Southern International Paper Company now owns and operates two kraft paper mills at Bastrop, Louisiana. The first mill (built by the Bastrop Pulp and Paper Company) was purchased in 1925, and the installation of a second machine at this mill has been completed, giving it a present production of 110 tons of kraft paper a day. The company has recently acquired the mill at Bastrop formerly owned by the Louisiana Pulp and Paper Company with a capacity of 175 tons a day of kraft paper and board. Both mills are comparatively new, the Bastrop mill having begun production in 1923 and the Louisiana mill in 1925.

Upon completion of the Camden Mill, the Company's three mills will have a capacity of approximately 450 tons a day of kraft paper.

These three mills are so located that they will not be reached by floods which may occur in the Mississippi Valley.

Following is a progress report on the construction of the mill, as of October 1:

Paper Mill Section

Machine room, beater room, finishing and shipping room: One building 780 feet long, by 108 feet wide, 48 feet high; reinforced concrete, brick and steel construction; gypsum roof with Barrett AA covering; one story with 17 foot basement. All concrete poured except basement and finishing and shipping room floors. Steel work complete. Brickwork 85 per cent complete. Gypsum room 80 per cent complete. Equipment 3 per cent installed. Pipework 5 per cent complete.

Pulp Mill Section

Wood room: Reinforced concrete, brick and steel construction with corrugated asbestos roof, 88 feet 6 inches long by 70 feet wide and 40 feet high; two story. Steel erection 100 per cent complete. All concrete poured except basement floor. Roofing complete. Two chippers and crusher supports installed. Screen supports installed.

Recovery room: Reinforced concrete, brick and steel construction with corrugated asbestos roof, 199 feet long, 106 feet wide and 54 feet high; two story. Completed. Machinery and equipment 95 per cent installed. Piping 80 per cent complete.

Caustic Plant: Settling and Filter House: Reinforced concrete, brick and steel construction with corrugated asbestos roof; two story; 103 feet long, 52 feet wide and 50 feet high. Complete. Equipment 95 per cent installed. Piping 98 per cent complete.

Slack room: 45 feet long, 32 feet wide, 23 feet high; reinforced concrete, brick and steel construction with corrugated asbestos roof. Complete. Equipment 98 per cent installed.

Salt Cake Building: 180 feet long, 45 feet wide, 23 feet high; reinforced concrete, brick and steel construction with corrugated asbestos roof. Complete. Salt cake conveyor, 95 per cent installed.

Digester—Diffuser—Evaporator Building

Reinforced concrete, brick and steel construction; concrete roof with Barrett AA covering; 108 feet long, 98 feet wide, 85 feet high. Building complete. All concrete poured except ground floor and auxiliary equipment foundations. All digesters, evaporators and diffusers installed. Complete. Piping 80 per cent complete.

Wet Room

Reinforced concrete, brick and steel construction with concrete roof and Barrett AA covering, 96 feet wide, 98 feet long, 49 feet high. Building complete. All concrete poured except basement floor auxiliary equipment foundations. Screen platform and screens erected complete except drive. One Rogers wet machine 75 per cent erected. Piping 30 per cent complete.

Power Department

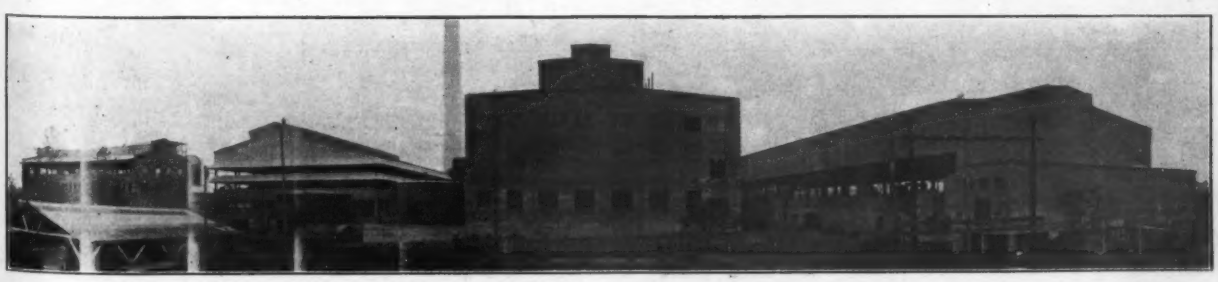
Switchboard room: Reinforced concrete, brick and steel construction with gypsum roof and Barrett AA covering; 18 feet wide, 108 feet long. Steel and concrete complete. Brickwork 90 per cent complete. Roof started. Conduit lines 100 per cent installed.

Boiler House

Reinforced concrete, brick and steel construction with corrugated asbestos roof 139 feet long, 57 feet wide, 49 feet high; one story. Building complete. All concrete poured except floor. Four 1,000 H.P. boilers erected complete. Brickwork for boilers 75 per cent complete. Burners 100 per cent installed. Piping started.

Machine Shop and Supply House

Reinforced concrete, brick and steel construction with corrugated



KRAFT PLANT OF THE SOUTHERN INTERNATIONAL PAPER CO., NEARING COMPLETION AT CAMDEN, ARK.

asbestos roof—129 feet long, 90 feet wide, 36 feet high. Complete. All machinery and equipment installed and operating.

Concrete Reservoir

78 feet by 40 feet by 7 feet deep. 150,000 gallons. Complete and in service.

Water Tower and Tank

75,000 gallon steel tank on 111 foot high tower with concrete foundations. Foundations and tower complete. In operation.

Bark Burner

28 feet diameter, 60 feet high; concrete foundation; steel shell brick-lined. Complete except brick lining.

GRAVELED WALL WELLS WILL FURNISH WATER

Each well will supply 600 gallons per minute. There will be ten wells, of which two will be auxiliary. In the photograph is seen the head of one of the wells and also the lower part of the structure used in drilling. The water is being allowed to flow away until needed.

Wood Yard

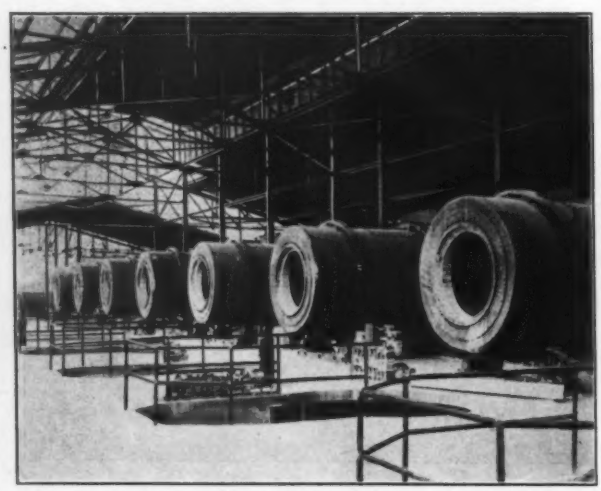
Two barking drums 10 x 20 feet erected, complete on concrete foundations. Conveyor foundations 40 per cent complete.

Liquor Storage Tanks

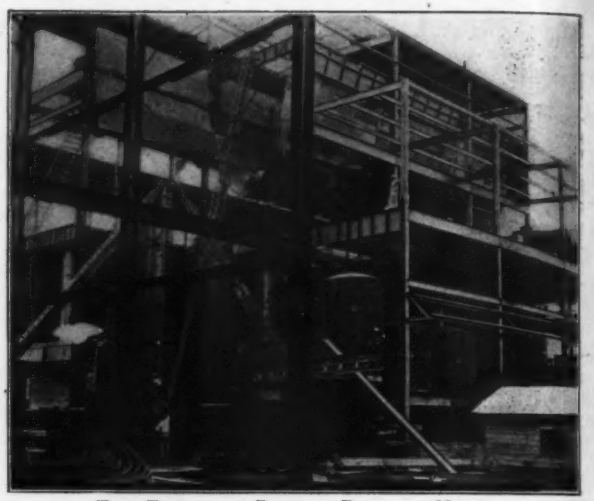
Concrete foundations complete. Steel tanks 90 per cent complete.

Sprinkler System

Underground lines 4,800 feet piping, fourteen hose hydrants; hose houses. 100 per cent complete and in operation.



THE RECOVERY ROOM



THE EVAPORATOR-DIGESTER-DIFFUSER HOUSE

Chimney

14 feet inside diameter at top by 205 feet high above ground; Heine reinforced concrete. Complete.

Office Building

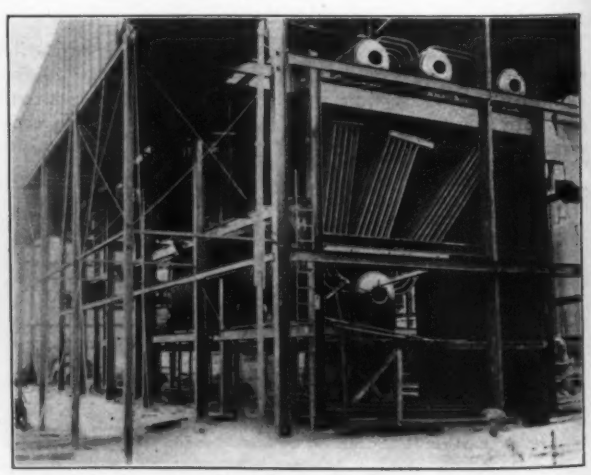
Steel complete. Roofing complete except for tile. Brickwork 90 per cent complete. Interior and trim 70 per cent complete.

May Buy Elkhart Stationery Co.

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 24, 1927.—Negotiations are reported to be about completed for the purchase of the Elkhart Stationery Company, Elkhart, Ind., by the General Paper Company of Marion, Ind. A tentative agreement has been reached by officers of the two companies and if a contract which has been drawn up is signed, the Elkhart company will be moved to Marion and merged with the purchasing firm. It was said, however, that some questions remained to be ironed out and reports from Marion to the effect that the deal already had been completed, were erroneous.

If the deal is completed, O. H. Sweitzer, treasurer of the Elkhart company, will go to Marion to become treasurer of the merged companies under the name of the General Paper Company, and G. W. Frederick, president, and Vard W. Frederick, secretary of the Elkhart company, will retire from business. In case the deal is completed, it is desired to have the move to Marion completed by December 1. The Elkhart company manufactures writing and school tablets of various kinds.



THE BOILER HOUSE

Brompton Pulp & Paper Co. Plant Extended

Construction of News Print Mill Completed—Paper Machine Designed to Operate Up to 1200 Feet Per Minute, Producing 110 Tons Daily—New Steam Plant Erected to Take Care of Increased Power Requirements—Other Improvements

Previous to April 26, 1926, a visitor to the Bromptonville plant of the Brompton Pulp and Paper Company would have seen a building housing a wood room, seven lines of pocket grinders and twenty-two ground wood wet machines, together with machine shop, blacksmith shop and shipping sheds. One also would have seen a steam plant and a Drum barker.

Going into further details it would have been observed that the wood room, which is located above and adjacent to the grinding room, cuts the four foot pulp wood into two foot lengths and by gravity this prepared wood drops into ponds and by water channels passes along to men who load it on to trucks and into the pocket grinders. About twelve to fifteen men are employed in the wood room and operate eight hours only.

Pocket Grinders

On each of the seven lines of pocket grinders are three stones. Lombard stones have been tried and used successfully. The size of the stone used is 54 inches by 28 inches. The grinders are known as Port Henry grinders and were manufactured some years ago by the Jenckes Machine Company, of Sherbrooke, Quebec. When operating to capacity, 110 tons of excellent ground wood is produced. A total of seventy men operate the ground wood mill on three shifts of eight hours.

Wet Machines

As noted, twenty-two wet machines handled the stock coming from the grinders. Warwick-Porritt & Spencer and Ayers ground wood felts were used. These felts measured 31½ feet by 70 inches and weighed about 43 pounds. An average day's run of about twenty days was realized with a production of 97 to 100 tons. Since the extension of a news mill to this plant, the wet machines have been practically discontinued. Ten hydraulic presses employed in manufacturing pressed stock have also been discontinued. A sufficient quantity of wet presses are kept in readiness in case of a shut down of a long duration in the news mill. The machine shop is equipped to amply fill the requirements of the plant.

Old Steam Plant

The old steam plant contained two 260 h.p. B. & W. boilers, one with dutch oven for burning refuse wood from the wood room, the other burned slack coal which was hand fired. In connection with this plant was a 200 h.p. twin cylinder Corliss engine direct connected to a Westinghouse AC generator which supplied the electricity used in wood barking and handling operations and for lighting emergencies.

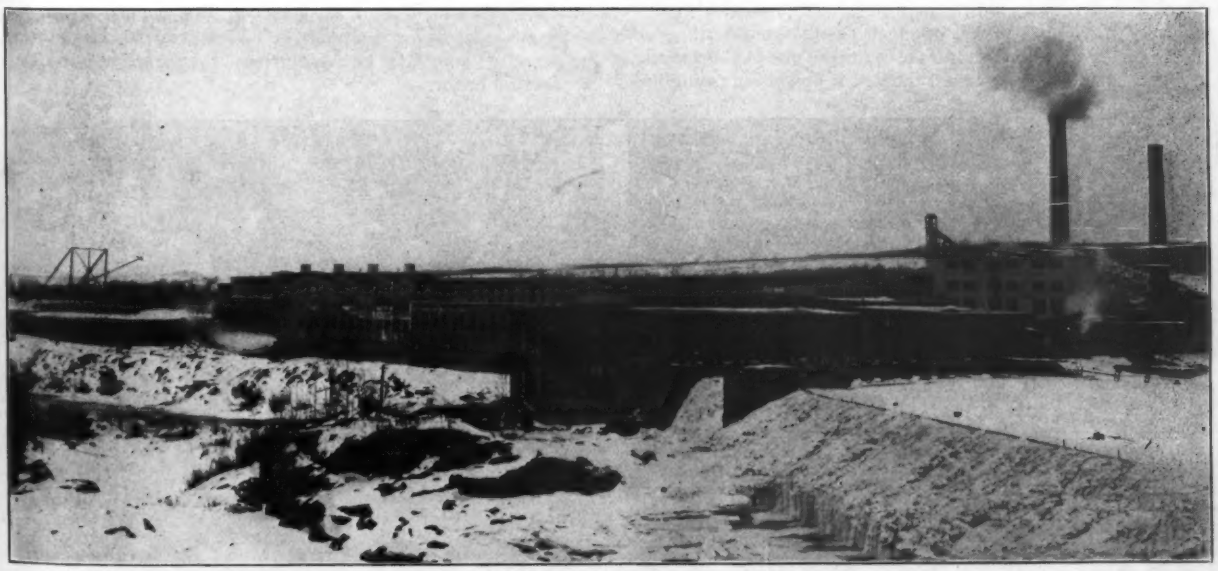
New Steam Plant

The old steam plant has been left in its original state but a new steam plant has been erected to take care of the increased power requirements. This new plant is up to date in every respect and consists of two 478 h.p. B. & W. boilers burning pulverized fuel and is operated at 150 pounds pressure and 100 degrees superheat. The boiler feed water and fuel gases pass through Foster economizers raising the temperature of feed water to 330 degrees, lowering the temperature of flue gases from 550 degrees to 300 degrees at 150 per cent rating.

Coal Handling

Cars of coal are unloaded direct into a track hopper and the coal is conveyed by a Jeffrey elevator to the bunker at top of the boiler house. The bunker will store 450 tons of coal. The surplus coal is returned to pile by means of a by-pass at top of elevator. This coal is then handled by a drag line scraper. Coal from the bunker is weighed in a two ton Jeffrey track Larry from which the coal is dumped into hoppers feeding Kennedy Van Saun air swept tube pulverizing mills.

Hot air from the air cooled furnace walls passes through the mill with the finely powdered coal and air floated into the furnace. The furnaces are equipped with Allen-Sherman-Hoff ash hoppers.



ENLARGED PLANT OF THE BROMPTON PULP & PAPER CO., AT BROMPTONVILLE, QUE.

The ash resulting from the operation is negligible. Eight men operate this plant.

At the present time of writing a construction plan is being carried out to install two more B. & W. boilers of 313 hp. each. Additional units of Foster economizer and Kennedy and Saun air swept tube mill will be installed in connection with these new boilers. It is expected this program will be completed by December of this year. This work is carried on under the supervision of E. P. Wilson.

The News Mill

Extension of a new mill was commenced on April 26, 1926. The consulting engineer, H. S. Ferguson, of New York, was represented by D. W. O'Shea, resident engineer. The entire operation of construction was carried out under the personal managership of C. R. McCort, now assistant general manager, with H. B. Hanna, as superintendent. Work progressed very rapidly and everything was in readiness by December 21 of the same year. The first cars of merchantable news print left the mill on January 28, 1927.

STOCK PREPARING ROOM
Ground Wood Deckers in Foreground. United Saveall in Distance. Sulphite Storage at Right.

Sulphite Storage and Stock Preparing Room

A sulphite storage and stock preparing room was erected adjoining the ground wood mill. This building is a one story structure, one longitudinal half being used for sulphite storage and the other for twelve Sherbrooke Machinery Company deckers, the deckered stock dropping into ground wood tanks. A "United Filter" is stationed on the mezzanine floor alongside the deckers mentioned to handle white water from deckers and news machine. The sulphite pulp required is passed through a Carthage shredder and conveyed to a Dilts continuous beater, then to sulphite storage tanks.

Machine and Auxiliaries

The ground wood and sulphite stock passes to a Trimbey proportioning meter after having been regulated through Trimbey consistency regulators. The stock then passes through two Port Arthur shipbuilding jordans to the machine chests. From the machine chest the stock is passed through a Boivin regulating box to the fan pump, where the stock is reduced to one half of one per cent consistency through to the four Canadian Ingersoll Rand Company Bird screens to the head box and paper machine.

The paper machine was made by Charles Walmsley & Company, Ltd., and is a 234-inch machine designed to operate up to 1,200 feet per minute. The machine is equipped with a Van de Carr slice—36-inch suction couch—Millspaugh suction couch and suction first press with granite top press rolls. The drying system is controlled by a Honoco temperature control system using the exhaust steam from the turbine.

The machine room ventilation is taken care of by Briner economizers, using the vapors from the machine hood to condition the incoming air. The broke and shavings from the rewinder is passed through a Dilts continuous beater to the ground wood deckers. The daily output of the mill is 110 tons.

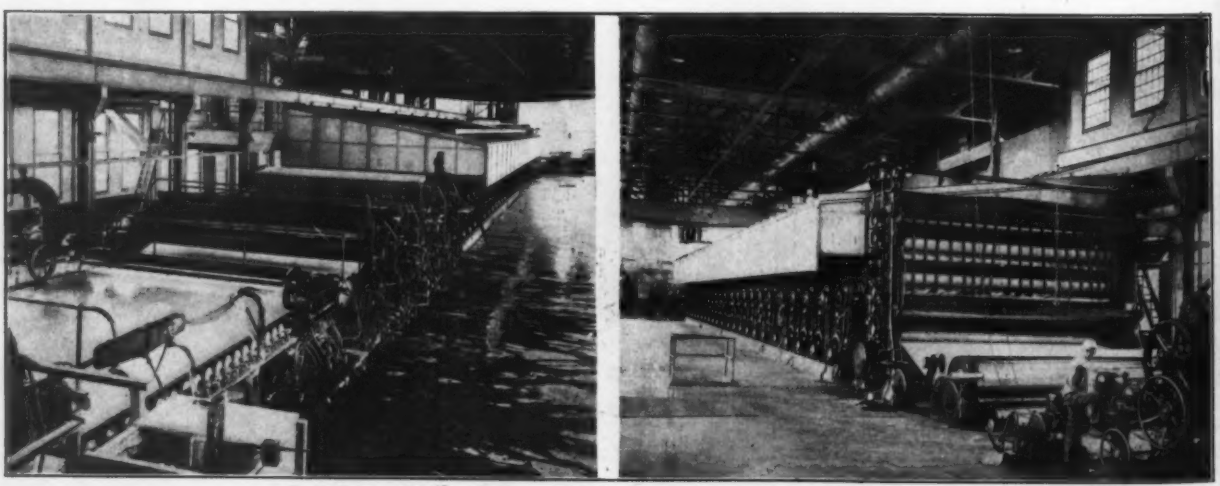
Machine Drive

In the basement of the news mill is located a 1,400 h.p. Allen steam turbine direct connected to a Harland D. C. generator. The turbine and generator are connected by a master shaft from which the vacuum pumps, fan pump and white water pumps are driven. The drive was purchased from and erected by the Harland Engineering Company of Canada.

A large finishing room is at the winder end of the paper machine. Rolls of paper are lowered by an Otis Fenson elevator to the finishing room floor. Here the rolls are wrapped and trucked by an electric truck to the cars placed in a train shed. The train shed can contain six cars for loading.

Paper Index Number Higher

WASHINGTON, D. C., October 26, 1927.—Paper and pulp had a wholesale index number in September of 92.4, compared with 92 for August and 95.7 for September of last year, taking 1926 at 100 per cent, according to the Bureau of Labor Statistics, Department of Labor.



VIEWS IN THE NEW MACHINE ROOM OF THE BROMPTON PULP & PAPER CO.

Chillicothe Paper Co. Extension Progresses

New Addition Will House a 154 Inch Rice, Barton & Fales Fourdrinier Having a Capacity of 40 Tons Daily—New Machine Is Expected To Begin Operation Early in the Year, Giving the Plant a Capacity of 70 Tons Daily

Ground was broken on August 4 for the construction of a building extension to the plant of the Chillicothe Paper Company at Chillicothe, Ohio. The extension when completed will house a new 154 inch machine having a capacity of 40 tons per day, and will provide necessary additional beater room and finishing room space. This will give the plant two machines having a combined capacity of 70 tons per day of high-grade book, bond, ledger and writing paper.

The machine to be installed is being built by the Rice, Barton & Fales Company of Worcester, Mass. The best present day practice is being followed in its construction. The wire will be 154 inches wide, giving a trim of about 140 inches. The Fourdrinier will be of the removable type, which will include a reel for stringing the wire after the Fourdrinier frame is moved out. All bearings on this part of the machine will be anti-friction.

The remainder of the machine will be of standard construction as follows: 3 presses, 24 60-inch dryers, 2 calenders, Pope reel and Warren winder. The machine will be operated by single motor drive through spiral bevel gear stands, equipped with magnetic clutches, which will be controlled by push button stations located at convenient points on the tending side of the machine.

All constant line equipment will be direct connected to individual motors.

Erection of the machine is scheduled to start on November 1 and will be completed ready for operation early in the year.

The building extension consists of a two story concrete and steel structure, divided by fire walls into beater room, machine room, and finishing room. The wall between the old and new buildings is to be removed above the second floor level. The beater and machine room extension is approximately 40 feet wide by 468 feet long. The finishing room addition is 75 feet wide by 109 feet long, with an 8 foot railroad loading platform at the second floor level. This platform is protected from the elements by a canopy which also extends over the new railroad siding. This gives the plant shipping facilities on two railroads—the B. & O. and Norfolk & Western.

The roof deck is of slow burning wood construction, supported on steel frame. The roof lumber is creosoted in the machine and beater rooms as a protection against rot and decay.

An overhead runway is provided in the machine room for a hand operated crane having two 5-ton hoists to service the machine.

The general contract for the design and erection of the building extension was awarded to the H. K. Ferguson Company, engineers and builders, Hanna Building, Cleveland, Ohio. Plans were immediately prepared by Ferguson engineers under the direction of E. F. Bearce, vice president and chief engineer of the Chillicothe Paper Company, in conjunction with the machine designers.

The design and installation of the heating, wiring, lighting, plumbing and sprinklers, was also awarded to the H. K. Ferguson Company. The heating plant is located on the ground floor and is of the blower type. Hot air ducts are carried up through the second floor along the columns to a short distance below the roof. The hot air is blown out from these ducts at several points, in front of the windows and just below the roof, for the purpose of controlling the temperature and humidity of the air in the machine room.

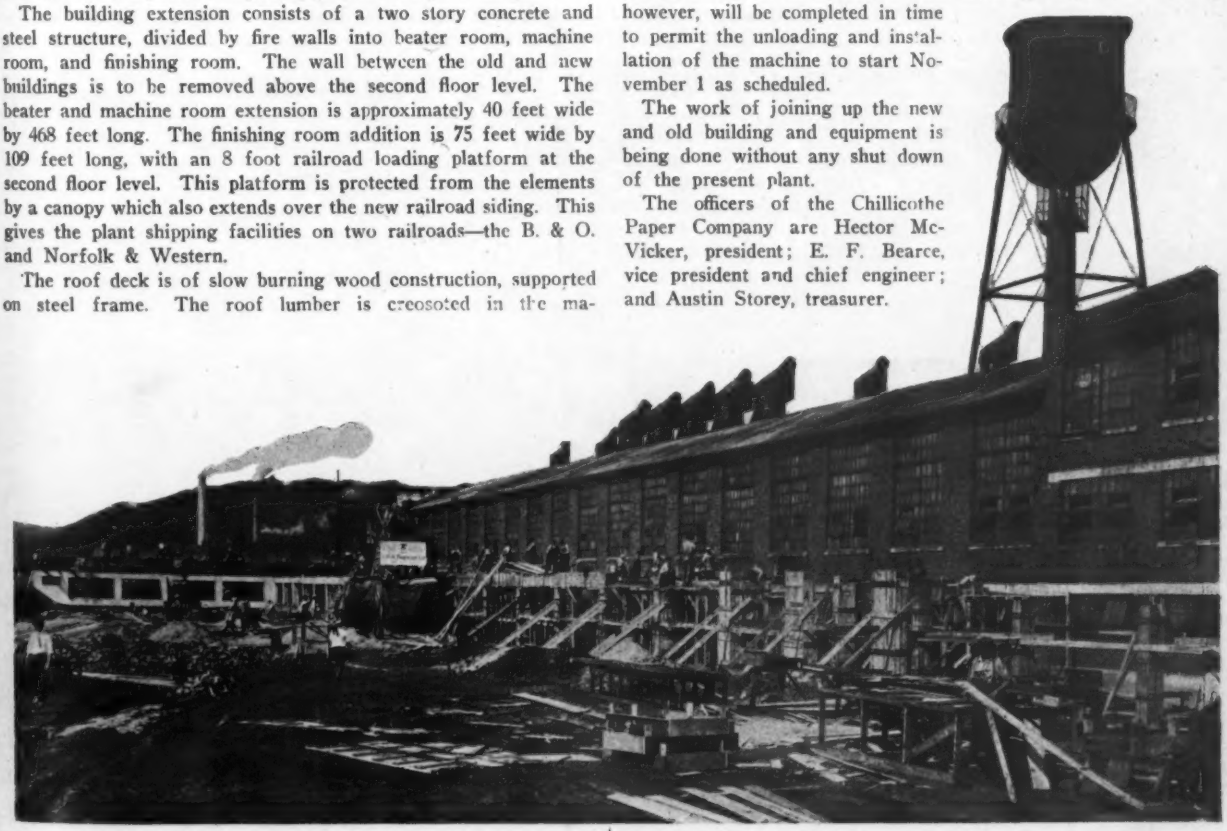
No hood is to be used over the machine. Moist air is exhausted through the roof by Swartwout ventilators.

A feature of the construction was the placing of the ground floor slab before the floor deck was built, saving considerable time in the completion of the building.

The building is scheduled for completion November 15 and the mechanical trades December 1. The finishing and machine rooms, however, will be completed in time to permit the unloading and installation of the machine to start November 1 as scheduled.

The work of joining up the new and old building and equipment is being done without any shut down of the present plant.

The officers of the Chillicothe Paper Company are Hector McVicker, president; E. F. Bearce, vice president and chief engineer; and Austin Storey, treasurer.



PLANT OF CHILLICOTHE PAPER CO. SHOWING CONCRETE WORK NEARING COMPLETION

Rhinelander Paper Co. Makes Improvements

Since the Beginning of 1927 Numerous Installations Have Been Made That Will Greatly Increase the Efficiency of the Mill—Other Improvements Now in Process Will Make It Possible To Make Pulp and Paper More Economically

The beginnings of the Rhinelander Paper Company, Rhinelander, Wis., are properly traced through the passing of the period when white pine was the dominating factor in the industrial life and activities of Northern Wisconsin. Often a business has behind the scenes a story that is nearly as full of interest and romance as a novel. So while the history of the Rhinelander Paper Company has much in common with other mills, yet there are certain phases connected with the inception and eventual development of the plant that are interesting because of the unusual conditions surrounding the early period of its life, as well as the many changes that have taken place in the later years of growth and expansion.

The men who were first imbued with the idea of manufacturing paper in the city of Rhinelander had no long paper making traditions behind them. But they had the vision to foresee the possibilities of converting our remaining forest products into paper, and realized that the ending of the logging industry was only the beginning of an epoch of paper making which would afford greater and more enduring financial returns, besides building up a more stable civic community.

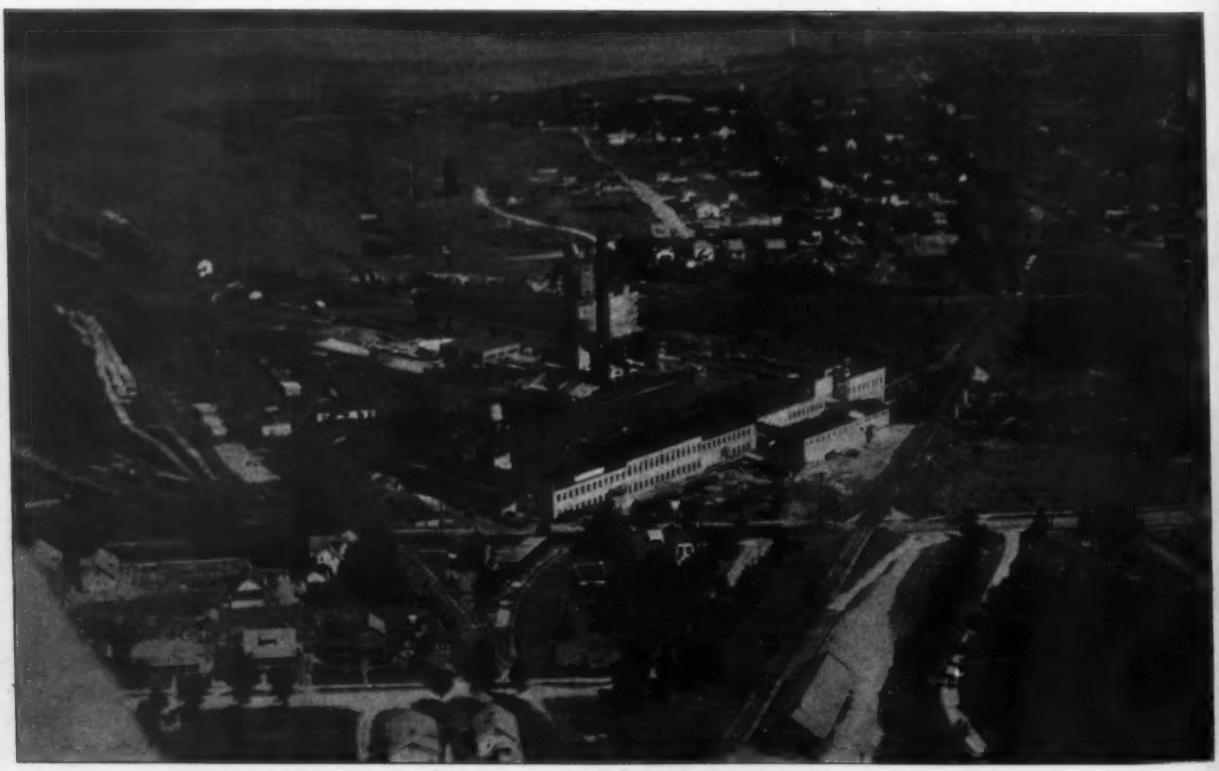
Mills Ideally Located

The mills are located in the heart of the city, in an ideal location on the Wisconsin River, where ample water power is available, as well as the best of transportation facilities to all points east, west, north and south, via the M. St. P. & S. Ste. M. and C. & N. W. railway systems.

The Rhinelander Paper Company was organized in 1903 and the following directors were chosen: A. W. Brown, W. E. Brown, John Barnes, Charles Chafee, Paul Browne, D. J. Cole and F. S. Robbins.

At this time the plant consisted of two Fourdrinier paper machines and a sulphite mill equipped with two 8-ton digesters and three lines of pulp grinders. News print was the product and continued so until 1908, when William Eibel, who had, in the meantime, succeeded E. A. Edmonds as manager, introduced a new wrapping paper on the market—"King William"—which became, in a short time, well and favorably known. Print and "King William" continued to keep the two machines busy until 1911, when it was decided to enlarge the plant and manufacture other grades of paper. At this period machine glazed paper was just coming into the market, and with a growing demand in sight, a new addition was built to the mill, equipped with a Beloit Yankee machine, two Bellmer bleach beaters, two roll beaters and a chlorine bleaching plant. In 1914 another Yankee machine was installed to take care of the increased demands for Machine Glazed papers.

During these years many changes took place incidental to the life of any progressive paper mill, but no marked departure from the previously named grades was taken until the year 1917, when one of the Fourdrinier machines was turned over to the manufacture of glassine and greaseproof. Eventually both machines were put on these grades of paper, the Rhinelander Paper Com-



AIR PLANE VIEW OF THE RHINELANDER PAPER CO., RHINELANDER, WIS.

pany becoming one of the few glassine mills in the country.

Many Improvements Recently

The past two years have, however, witnessed many changes and additions and the introduction of numerous ideas and innovations in this growing plant. In January, 1926, Folke Becker came from the Westfield River Paper Company to assume the superintendency of the mill. At the same time John A. Wesley, who has had years of experience both in the mill and in the trade, took charge of the sales. Together with Mr. Eibel, they have succeeded in placing this mill in a position to be regarded as one of the foremost plants making high grade glassine and the finer grades of machine glazed wrappings and tissues.

Since the beginning of the year 1927 extensive improvements have taken place in and around the plant, and numerous installations put in that should make for greater efficiency in the future operation of the mill. Other manufacturing facilities now in process of construction balance the plant's equipment and make it possible to handle all pulp and paper products more economically and efficiently. The most important of these improvements and installations for this year are:

Sulphite Mill

A fifteen-ton digester has just been completed which, with the three eight-ton digesters already in operation, should give an abundance of sulphite for all future needs. The digester, just completed, was erected by the Manitowoc Engineering Works.

Filter Plant

A filter plant is located in an all concrete two-story building with a capacity of 10,000,000 gallons per 24 hours. This is the system of the Permutit Company, of New York, and is a combination of chemical treatment of the water, sedimentation and filtration. This is an especially valuable asset to the mill as there is a decided improvement in the brightness of the paper made since the installation of the filtering plant.

Pulp and Screenings Tanks

For storage purposes six large reinforced concrete tanks were built. Stock is deckered to these tanks and pumped from there to the various beaters. No lap stock will be used.

Well Water

Two driven wells, 80 feet under the surface of the ground, furnish cold water so essential to the manufacture of high grade sulphite pulp.

Acid System

An additional acid storage tank with added cooling surface in the cooler room. Various improvements around the acid plant have continued throughout the year, making it one of the most up-to-date in the country.

Bleach System

A new high-density bleaching system with a capacity of 50 tons a day is in operation. The type is the Fletcher vertical unit and

HIGH DENSITY BLEACHER

is operated at a consistency of about 20 per cent. All bleachers as well as chests in this installation are lined with white tile to insure maximum cleanliness.

Fourdrinier Machines

Wet ends of both machines have been replaced with the latest improved type furnished by the Beloit Iron Works, Beloit, Wis.

Ventilation

Hoods installed over Fourdrinier machines by the Merrill Machinery and Supply Company, Merrill, Wis.

Crepe Machine

Equipment for the manufacture of machine creped papers has been installed.

INTERIOR FILTERING PLANT

FILTERING PLANT UNDER CONSTRUCTION

Embossing Machine

An embossing machine installed in glassine finishing room. Built by the John Waldron Corporation, New Brunswick, N. J.

Supercalender Stack

New supercalender installed by B. F. Perkins & Sons, Inc., Holyoke, Mass. This is of the latest type, built especially for the Rhinelander Paper Company, and the first glassine stack put out by B. F. Perkins & Son, Inc.

Refrigerating Machine

A York 50-ton sulphite capacity refrigerating machine. This is to assist in keeping the water in the coolers at a low temperature in the summer months.

Motors

Eighty A.C. motors of various sizes have been put in throughout the plant, supplanting belts and pulleys, as well as two water wheel drives.

Machine Shop

A machine shop with 10,000 feet of floor space, operating all manner of tools necessary in paper mill work.

Proposed Construction

A 184-inch Fourdrinier paper machine to run on glassine and greaseproof. Plans are already being drawn for the machine and beater rooms.

A new steam plant consisting of four 800 H.p. high pressure boilers.

New wood room to replace the one in operation at the present time.

Employment and Safety

These departments, centralized in the past two years, have proven their value to the company. The Rhinelander Paper Company has demonstrated through safety contests that it is one of the safest mills in the country. It placed very high in the recent safety contest sponsored by the National Safety Council. During the past year the labor turnover has been very small which speaks well for the management in its relations with the personnel of the mill.

Timber

A plentiful supply of spruce timber has been secured in Minnesota and Ontario. This wood is shipped, pecled, to the yards where it is stored for proper seasoning before being used in all grades of glassine and the finer grades of tissue. Hemlock is brought from the Wisconsin timber holdings for making the cheaper grades of tissue and colored wrappings.

South Glens Falls Mill Changes

[FROM OUR REGULAR CORRESPONDENT]

The South Glens Falls plant of the International Paper Company, at Glens Falls, N. Y., early this month completed its last run on news print paper. According to George Forester, manager of the mill, the paper machines were operated until all stock on hand was used. The closing down of the machines is said to have marked the passing of the South Glens Falls mill as a news print mill.

The discontinuing of news print production is one of the last steps in the plans of the corporation for converting the mill to the manufacture of medicated absorbent tissue. About 180 men will be thrown out of employment temporarily while the necessary changes are being made in the machinery. Mr. Forester stated that the company expects to use practically all of the old employees in other positions as soon as contemplated plant changes are made.

It is understood that production will be started on the new product in a short time and many additional women employees will be engaged. The Valdown Company, a subsidiary of the International Paper Company, has been installing specially designed machinery in the mill for some time.

De Pere Paper Plant Completely Modernized

The plant of the newly organized Nicolet Paper Company, at De Pere, Wis., began operating in August. The mill, formerly in the American Writing Paper Company chain, had been idle for six months while it was being converted to the manufacture of glassine and greaseproof papers.

Of brick construction, the mill is a thousand feet long and five stories high. The machines are at angles with the main building, two hundred feet long, and the super-calender and finishing rooms, as well as the boiler house, are also at an angle with the main building.

Completely modernized, the mill is equipped with two machines made by Rice, Barton & Fales, one a 120-inch, and the other a 90-inch machine. Additional equipment includes fourteen 1200-pound finished paper beaters with stone rolls, three large Norwood Engineering Company super-calender stacks and four large Cameron rewinders. The mill is equipped to make rolls or sheets of any size. There are three artesian wells, each 800 feet deep and the water to be used in making the paper will be all from these wells. No river water will be used.

The Nicolet mill is located on the North Western and St. Paul Railways and coal is shipped to the company's own docks, as well as other raw material, by Great Lakes steamers. Situated at De Pere at the lower end of the Fox River, the company is at present developing 1,800 horse power by water. The finishing room, super-calender room, rewinders, dampeners and elevators are electrically driven. The machines are driven by steam turbines and the beater room is driven by water power. The company is developing its own electricity and will not purchase any from the outside.

All stock and water lines are of Taylor Spiral Pivoted Pipe.

William C. Wing, president of the company, is also president of the Fox River Paper Company. H. C. Hanke, vice-president and general manager of the company, has had ten years experience in the manufacture of glassine and greaseproof papers and was formerly treasurer and general manager of the Rhinelander Paper Company. H. K. Babcock is the treasurer and Edward J. Dempsey the secretary of the company.

Manning Paper Co. Builds Power Station

A new sub-station, to cost $80,000, to furnish power for the plant of the John A. Manning Paper Company, Inc., is under construction at the foot of Center street, Green Island, N. Y. The new power plant will be equipped with two Worthington Centrifugal 200 horsepower motors which will drive 4,000 gallons of water per minute into a 24 inch cast iron main.

When completed the plant will be unique in these parts because of the fact that no employees will be required in the building, the equipment being controlled by an electrical system from the main factory more than a block away. The electrical equipment was designed by the General Electric Company. Frank Williams, of Albany, is the engineer in charge and the American Pipe and Construction Company has the contract for building and equipping the new station.

The power house is being erected on ground in the rear of the Odd Fellows' Building along the Hudson River which was purchased last year by the paper concern. Plans for the construction were drawn up by Francis E. Gallagher, vice president of the Manning Paper Company, and Everett W. Jones. The company now obtains its water power from the state basin. The first step toward shifting the source of supply to the Hudson River was taken some time ago when the same contractors laid a 24 inch pipe from the river to the main factory. The latter occupies the block between Clinton and Center streets on the west side of George street.

It is expected the power station will be completed and in operation within two months.

Water Power Facilities For Northern Mills

Recently Completed Hydro Electric Plants at Green Bay and White Rapids, Wis., Have Output of 10,500 H.P. For Manufacture of Pulp and Paper—Both Plants Equipped With G. E. Automatic Switch Boards

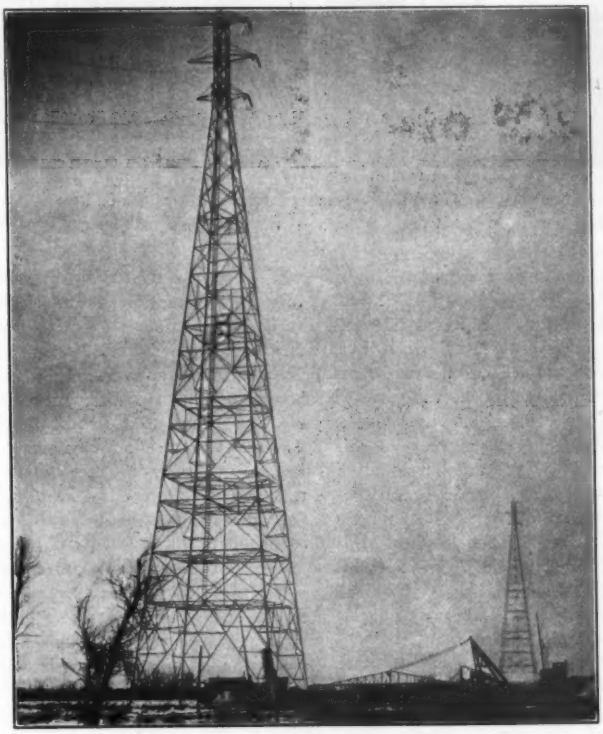
In former days, water power sites were chosen for the building of paper and pulp mills. This was due to the fact that water and power are two of the three (the third being wood) principal prerequisites in the manufacture of paper. Such a location was strategical.

The Northern Paper Mills, home of "Northern Tissue," is located near the mouth of Fox River in the City of Green Bay, Wisconsin. No water power is available in the immediate vicinity. However, in this present age, it is strategically located for the following reasons.

The Company owns sixteen hundred feet of dock frontage in the harbor of Green Bay. Self unloading coal boats place eastern coal for a very low cost at the boiler room. Thus, in effect, the Northern is located near the coal mines

Large timber holdings have been acquired in Canada and it is probable that water transportation will be utilized in delivering the wood direct to the wood yard. Thus, as far as wood costs are concerned, the Northern is located near the forests.

Ocean going freighters visit the port occasionally and the future will, no doubt, provide water transportation for the product of the mill to various inland and ocean ports of the country. With this reduced freight rate obtained by loading direct on board ships, the sales organization will have the advantage of a mill located near the points of consumption.

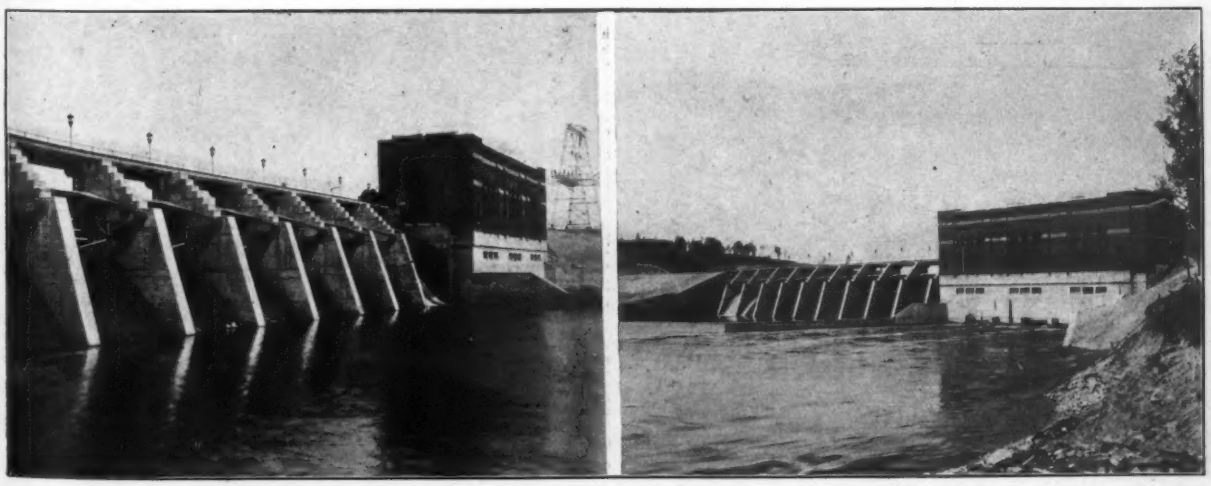


STEEL TOWERS 265 FEET HIGH CARRYING ELECTRIC TRANSMISSION WIRES ACROSS THE FOX RIVER AT GREEN BAY

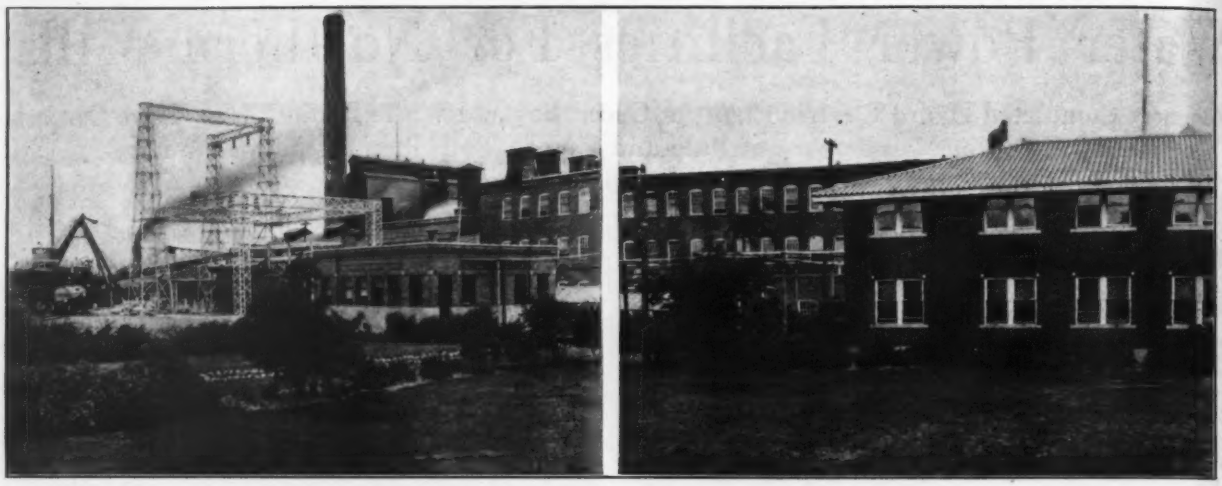
The only thing that appeared to be lacking in this obviously strategical situation was the absence of water power. In this age of super-power developments, the building of extensive transmission lines is a commonplace occurrence and losses are negligible over long distances.

How much more reasonable it is to bring in the water power and thus amass a number of advantages at a site for a paper and pulp mill than it is to build the mill inland at a water power site and continually pay out profits for rail transportation on raw materials and finished products.

About six years ago, the Northern Paper Mills acquired two hydro-electric sites on the Menominee River, eighty miles north of the City of Green Bay. A steel tower transmission line was designed and easements had been purchased when the Wisconsin Gas and Electric Company learned of the project. Subsequently, a contract was entered into leasing them one-half of the cross-arm space of



LEFT—CHALK HILL HYDRO-ELECTRIC PLANT. CLOSE UP VIEW OF DAM FROM DOWN STREAM SIDE SHOWING TAINTOR GATES. RIGHT—GENERAL VIEW OF CHALK HILL HYDRO-ELECTRIC PLANT, AND DAM FROM TAIL RACE



LEFT—SUBSTATION OF NORTHERN PAPER MILLS WHERE ELECTRICITY FROM CHALK HILL POWER PLANT IS RECEIVED; ALSO SHOWS CARGO OF COAL BEING UNLOADED FROM BOAT AT DOCK. RIGHT—VIEW OF PART OF OFFICE AND MILL NORTHERN PAPER MILLS

the double circuit towers. Thus the recently constructed tower line serves as a link in the super power development of the North American Company, and the Northern Paper Mills saved considerably on the installation cost of the transmission line.

In July, 1926, construction work was started on the two dams by the Northern Electric Company, of Wisconsin, a utility owned and controlled by the Northern Paper Mills. The upper dam, known as the Chalk Hill Plant, was completed in May of this year. The entire output of this 10,500 H. P. station is sold to The Milwaukee Electric Railway and Light Company. The installation is comprised of a dam of eleven 12 ft. x 24 ft. tainter gates and a station housing three vertical turbines direct connected to 3,250 KVA generators furnished by the Allis-Chalmers Manufacturing Company. Current is generated at 3 phase, 60 cycle, 2300 volts and sent out at 132,000 volts.

Flexibility of White Rapids Flow

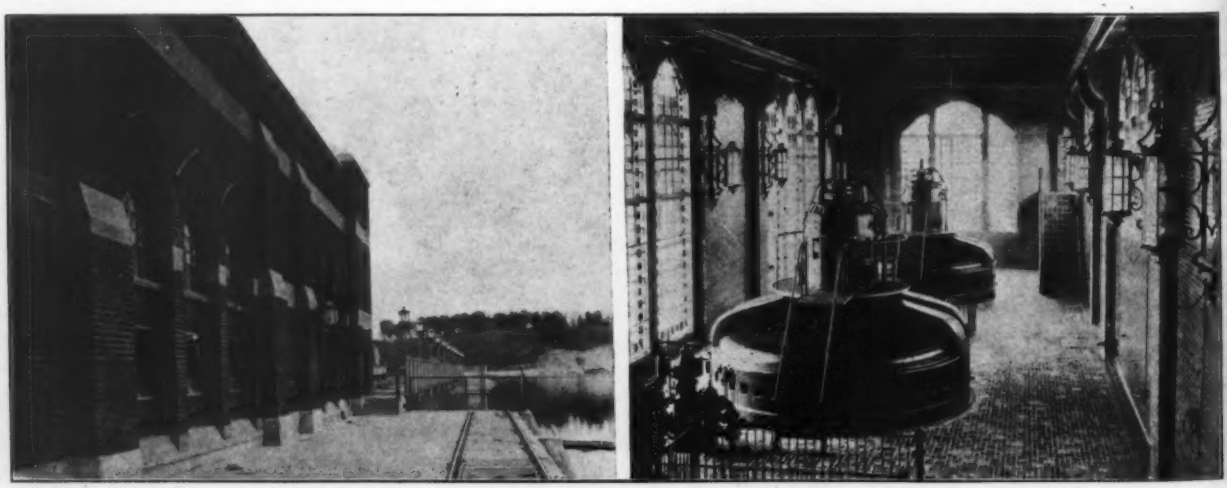
A second plant of equal capacity is located two and one-half miles down river from Chalk Hill and is known as White Rapids. Here the dam consists of nine 14 ft. x 24 ft. tainter gates and a power house containing two large and one small Francis Type turbines direct connected to General Electric generators of 3,750 KVA and 2,500 KVA capacity. In this installation, the larger wheels operate at 100 r.p.m. and the smaller at 120 r.p.m. The two sizes were purchased to obtain flexibility during periods of varied flows. Power from the White Rapids plant is used at the Northern Paper Mills.

Both plants are equipped with General Electric automatic switch boards to obtain all of the protective features available. However, an operator will be in attendance at all times at both plants. The upper plant has a 28 foot head and the lower a 29 foot head. Practically no water enters the river between the two plants and thus it will be interesting from an engineering standpoint to compare the relative merits of the two so distinctly different types of installation.

Artistic Appearance of Power Houses

Realizing the real estate value of the two beautiful wild wooded lakes formed by the project, special stress has been placed on the appearance of the power houses. The decided departure made from the conventional hydro-electric power plant design has caused favorable comment.

The Chalk Hill plant is built of a tapestry face brick in dark browns and reds laid up in dark mortar with a raked joint. The construction is massive in appearance, adorned with light yellow-brown trim stones and tall Gothic arched windows.



LEFT—POWER HOUSE OF CHALK HILL HYDROELECTRIC PLANT LOOKING ACROSS THE DAM. RIGHT—INTERIOR OF CHALK HILL POWER HOUSE SHOWING VERTICAL GENERATORS

The interior is salt glazed brick of light straw color. A tile floor of darker shades sets off to good advantage the machinery which is painted blue to blend with the leaded stained glass windows in strong blues, greens and ambers. Cathedral lights adorn the walls, giving the whole a touch of strength, dignity and charm seldom seen in a commercial structure.

White Rapids Superstructure

The White Rapids superstructure is constructed of rough texture face brick in dark browns and yellow shades, with a dark raked joint. Massive intricately designed trim-stone forms column caps and belt course trims which are very pleasing to the eye. The windows are tall and narrow with the exception of the west end window, which is hexagonal in shape. Leaded stained glass, similar in shades to that used at Chalk Hill, is installed.

The interior brick is similar to Chalk Hill, with the introduction of a darker glazed brick for panels and borders. The tile floor is also similar, but the machinery is painted green, to blend with the green in the windows, rather than blue as in the upper plant.

The completed Chalk Hill hydro-electric plant has received a large amount of favorable comment though some say that the White Rapids plant surpasses it in beauty.

With the completion of the White Rapids plant, the Northern Paper Mills enjoys all of the advantages of a hydro-electric plant at its front door. Ten thousand horse power in plant capacity is connected for the manufacture of pulp and paper.

Brown Paper Mill Co. Completes Extension

The Brown Paper Mill Company, Inc., of Monroe, La., has completed its expansion program and started the new 176-inch Pusey & Jones machine.

Most Modern High Speed Type

This machine is of the most modern high speed type, with General Electric sectional machine drive, removable Fourdrinier, suction couch and first press, with complete vacuum pump equipment by Nash, 46—60-inch paper dryers, 6—48-inch felt dryers, copper jacketed receiver or baby dryer, double stack of Farrell calenders, Langston slitter and winder, Fulton drying system and complete Ross system of heating and ventilation.

The additions were planned by Geo. F. Hardy, as was the original unit.

Additional Equipment

In addition to the paper machine, the new equipment consists of a 7,500 KVA General Electric turbo generator unit with accessories, three Wagner recovery units, three 1,350 cubic foot Kellogg tumbling digesters with battery of diffusers, three Bird centrifugal pulp screens, six Mount lime mud filters, Trimbey metering system, six No. 3 Shartle jordans, a Shartle beater for shredding and pulping laps, two triple effect Zaremba evaporators and a complete system of overhead electric trolleys for handling the reels and heavy rolls from the new machine.

The new buildings and additions were erected by the Morton C. Tuttle Company, of Boston. The piping by the Grinnell Company. The pumps, with their direct connected motors, were furnished by the Fairbanks-Morse Company.

In connection with the Wagner recovery units are three 500 hp. Wickes vertical tube waste heat boilers with super heaters.

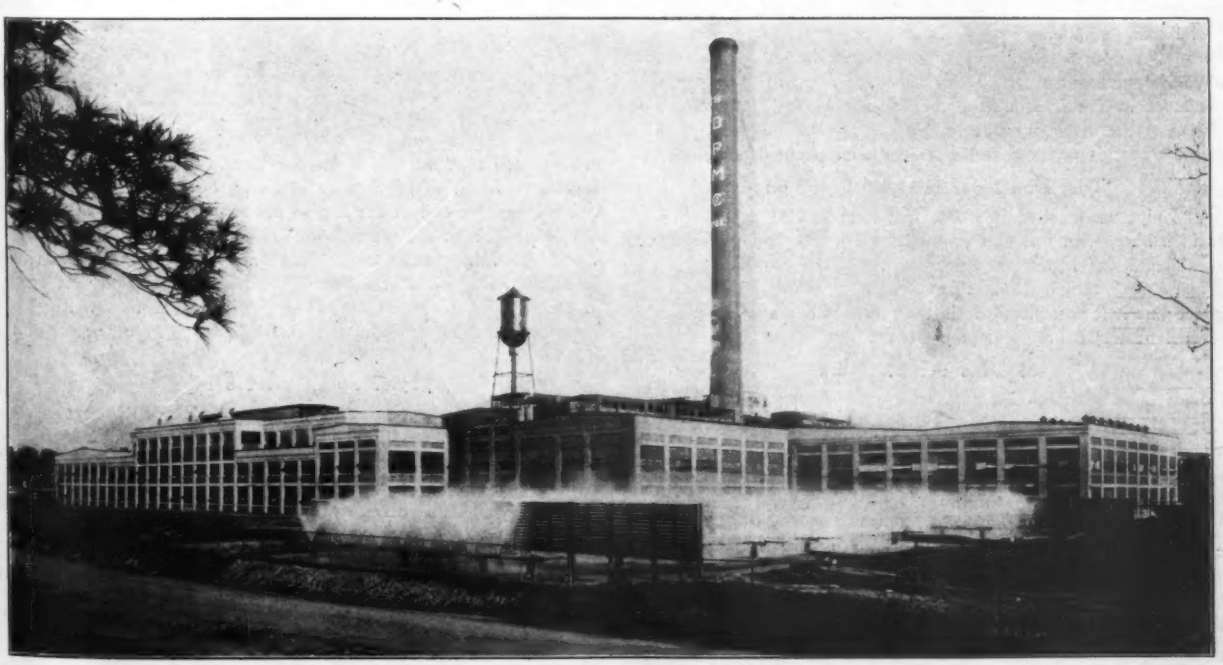
All the tank work, as well as a new bark burner, was built and erected by Walsh & Weidener, of Chattanooga.

Operates Its Own Forests

This mill is a completely self-contained unit, owning and operating its own forests, which are so extensive that the annual growth is greater than the annual cutting.

These forests are connected with the mill by the mill's own railroad and the wood handled by its own equipment of locomotives and other rolling stock.

The water supply is from artesian wells on the mill property.



ENLARGED PLANT OF THE BROWN PAPER MILLS CO. AT MONROE, LA.

Connect Wisconsin Mills by Pulp Line

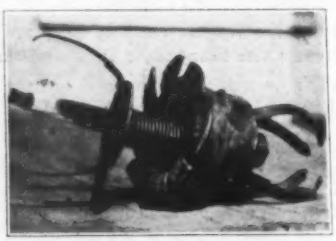
News Print Sulphite Carried in Liquid Form a Distance of Four Miles, From Wisconsin Rapids Plant to the Biron Mills, of Consolidated Water Power & Paper Co. — Innovation Effects Great Savings and Adds to Capacity

The Wisconsin Rapids and Biron Mills of Consolidated Water Power and Paper Company, both making news print paper, are located four miles apart on the Wisconsin River. Prior to 1926 a sulphite mill of two 10 ton digesters producing approximately 50 tons per day was in operation at the Wisconsin Rapids Mill, providing this mill with all its news print sulphite, and about 15 tons per week extra which was shipped to Biron in the form of laps.

Early in 1926 it was decided to add to the sulphite mill sufficient capacity to supply the Biron Mill with all of its news print needs. The purpose was to add to the present unit, thus enabling the mill to produce 75 tons per day with very little extra capital investment and also improving upon the efficiency by having the total sulphite tonnage produced in one unit.

Handling Charges Investigated

The company was then faced with the problem of getting this sulphite to Biron as cheaply as possible, and investigation showed



Go Devil

that handling charges of the laps, freight charges, and greatest of all, the expense of making the laps totaled approximately $5.00 per ton.

It became very obvious that if the stock could be carried to the Biron Division in slush form the saving involved would warrant a capital investment of considerable size. A pipe line to carry the stock in liquid form from the one mill to the other mill, four miles up the river, appeared to be the easiest and most logical solution to this problem and was forthwith planned and installed.

Cast Iron Pipes Is 19,000 Feet Long

The pipe as installed is 19,000 feet long and of cast iron with 10 inch bore, with bell and spigot leaded joints, laid underground at a depth varying from 2½ feet to 6 feet, graded so that by opening four tees located at approximately equal distances apart in the line it is possible to drain the pipe. It has numerous bends, several of which are 90 degree elbows.

35 Tons Per 24 Hours

Between the intake end at Wisconsin Rapids and the delivery end at Biron there is a static head of 60 feet. Sulphite is delivered at the rate of 35 tons, air dry weight, each 24 hours, by means of one 5-inch centrifugal pump directly connected to a 60 horse power electrical motor operating at 1750 revolutions per minute. Pump capacity is 800 gallons per minute of stock at .875 per cent density against 190 feet head, and the friction loss figures out to be exactly 5 feet loss per hundred feet of pipe.

Density for Steady Operatoin

In actual practice it is found that friction losses mount rapidly with increase of density and are not directly proportionate to density variation. Based on the friction loss of water which varies directly as to the square of the velocity, stock at 2 per cent density offers about four times the friction loss of water or about two and one-quarter times the square of the velocity. Above 2 per cent, however, friction losses go up faster, so that 6 per cent stock has about forty times the friction of water based on normal travel, 10 feet per second. We find the most suitable density for steady operation to be something under 1 per cent as sufficient stock is delivered for the needs of the mill at the moderate pump pressure of 70 to 75 pounds with stock travel at about 3 feet per second.

Slime Affects Operation

The line was put into operation in August, 1926, and operated successfully until early in December. At that time a great deal of slime began coming through with sulphite. It came in such quantities and in such large bunches that it began to interfere seriously with the operation of the machines at the Biron Mill. It was necessary to discontinue the sending of sulphite until a suitable means was found of cleaning the line. During the winter months water was pumped continuously through the line to prevent freezing and no trouble was experienced from that source, even during the coldest weather.

Go-Devil Cleaner Installed

By April first a cleaner for the line had been designed and constructed by the Hayton Pump and Blower Company, of Appleton, Wisconsin, and was christened the "Go-Devil." The instrument is about 24 inches long, equipped with a row of hardened steel scrapers or blades arranged in a circle to fit the pipe. They are pitched somewhat like propeller blades and when the Go-Devil is placed into the pipe, which it fits quite snugly, the motion of the liquid through these blades rotates it. In this process the blades scrape the fungus and slime off the walls of the pipe as the Go-Devil moves forward, propelled by the water behind it.

Perfect Alignment

Steel tentacles or guides at front and rear keep the Go-Devil in perfect alignment and it succeeds in negotiating the sharpest bends and even climbing up the 20 foot vertical run of pipe at the delivery end at Biron. It makes a non-stop flight from Wisconsin Rapids to Biron every Sunday morning, being pumped with the water from one end of the line to the other.

Investigation of the water which is delivered after the cleaning shows astonishing amount of slime and vegetable matter carried through to the end of the line. The sulphite pipe line has been in steady operation since April 1, 1927, and at this writing is furnishing the Biron Mill with their total supply of news print sulphite.

Taylor Spiral Riveted Pipe

During the past two years numerous changes have been made requiring quantities of 14, 12 and 10 inch pipe for pumping stock and also water. Taylor Spiral Riveted pipe was used on these installations, some of which were seen by the men who attended the convention held recently at Wisconsin Rapids.

It is interesting to note that the company adhered to rigid specifications which meant distinct savings and greater general economy in their piping layouts. The Taylor pipe was all made of a special copper bearing steel, and the galvanizing was done by the American Spiral Pipe Works in their own plant, the coating being applied by the hot-dip process after complete fabrication.

Genuine forged steel flanges were used throughout to insure tight joints and freedom from erection difficulties.

Improvements at P. H. Glatfelter Co. Plant

During the past three years the buildings and units of the plant of the P. H. Glatfelter Company, of Spring Grove, Pa., have undergone modernization with the addition of many new mechanical devices and accessories installed to perfect the paper making equipment of the plant, which is all in accordance with their policy of producing a higher grade product.

The most recent improvements which have just been completed are the enlarging of the calender and finishing room. A 100 inch calender stack has been added to the equipment, as well as extra trimmers and cutters. Additional floor space has been given to the sorting and finishing departments. Loading facilities have been improved, whereby seven cars can now be loaded at one time, all under cover.

The old Glatfelter paper mill, established in 1864, is today one of the most modern book mills in the east. This company produces its own electric power with an up-to-date and efficient steam plant. Practically every unit in the mill is motorized.

The old frame and brick buildings have all been replaced by steel, brick and concrete structures, having gypsum roofs with large skylights, which affords the various departments the maximum of light and ventilation.

An efficient engineering department is maintained which oversees all details pertaining to new construction and mill maintenance.

Many of the employees are stockholders, and the Company has made provision by which each employee, by paying a small sum each month, can obtain an additional $1,000 life insurance policy in addition to that of a group policy furnished by the company.

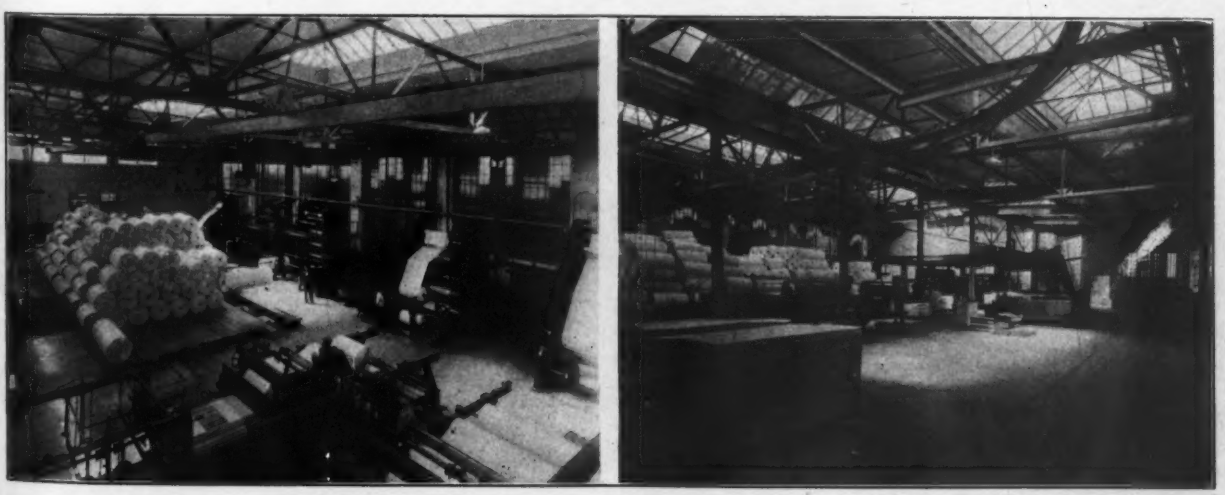
The Glatfelter mill produces 100 tons daily of machine finish, supercalender, envelope, writing, bond and mimeograph papers, and is known specially for its high grade English Finish "Provenworth" and "Bulking" book papers. "Monoplane" English Finish, Super Book and "Dupligraph" paper are the latest additions to the line of book papers of merit.

AIRPLANE VIEW OF GLATFELTER PLANT

News Print Production for September

Production of news print in Canada during September, 1927, amounted to 178,815 tons and shipments to 177,195 tons, according to the News Print Service Bureau. Production in the United States was 114,735 tons and shipments 114,325 tons, making a total United States and Canadian news print production of 293,550 tons and shipments of 291,520 tons. During September, 16,909 tons of news print were made in Newfoundland and 1,109 tons in Mexico, so that the total North American production for the month amounted to 311,568 tons.

The Canadian mills produced 138,313 tons more in the first nine months of 1927 than in 1926, which was an increase of 10 per cent. The United States output was 123,170 tons or 10 per cent less than for the first nine months of 1926, that in Newfoundland 167,955 tons, or 13 per cent more, and in Mexico, 1,206 tons or 13 per cent more, making a total North American increase of 33,044 tons or 1 per cent.



VIEWS IN RECENTLY COMPLETED DEPARTMENTS OF P. H. GLATFELTER CO., SPRING GROVE, PA.

New Straw Board Mill Completed at Trenton

Modern Plant Erected by the Hinde & Dauch Paper Co., of Canada, Is Capable of Producing Fifty Tons Per Day—Output Intended To Be Used in the Making of Corrugated and Fiber Boxes at the Toronto, Ont., Plant

The new fifty ton paper mill which has been erected at Trenton, Ont., by the Hinde & Dauch Paper Company of Canada, Ltd., manufacturers of corrugated boxes, fiber boxes, straw board, mill board, corrugated paper and box boards, was completed recently. The output of the mill is to be used in the making of corrugated and fiber boxes at the plant of the company in Toronto. The mill was designed by Orville H. Moore, of Toronto, who is the general manager of the organization, and it was erected under his personal supervision.

This modern and up-to-date building is 1050 feet in length and 60 feet in width. The general construction of the Trenton Mill is of steel, concrete and brick, with a gypsum roof. The machine room and beater room occupy the basement and one story, while the cooker room has four stories.

Equipment and Capacity

The mill is equipped with a 126 inch straight Fourdrinier Downington paper machine, capable of turning out fifty tons of .009 straw paper per day.

Six 1,500 pound beaters and four Jordan engines were furnished by the Port Arthur Shipbuilding Company, of Port Arthur, Ont., and are of the Noble & Wood design. Eight fourteen foot rotary cookers were also furnished by the Port Arthur Shipbuilding Company.

The boiler equipment of the Trenton mill consists of three 3-drum Erie City Water Tube Boilers of 400 horse power capacity each. They were built by the John Inglis Company, of Toronto, Ont.

Pulverized Coal Used

The fuel used at the Hinde & Dauch plant is pulverized coal, the equipment for which was supplied by the Strong-Scott Manufacturing Company, Ltd., Winnipeg and Toronto. This system is unique in that all air required for combustion passes through the pulverizer, no magnetic separator is required, and power required for pulverizing, feeding and burning is supplied by a single motor on each pulverizing unit.

Electrical equipment for the plant was supplied by the Canadian Westinghouse Company and the Canadian General Electric Company.

In addition to the Trenton mill, the Hinde and Dauch Paper Company is operating a plant at Toronto, Ont., manufacturing fiber board, with a capacity of around sixty tons per day.

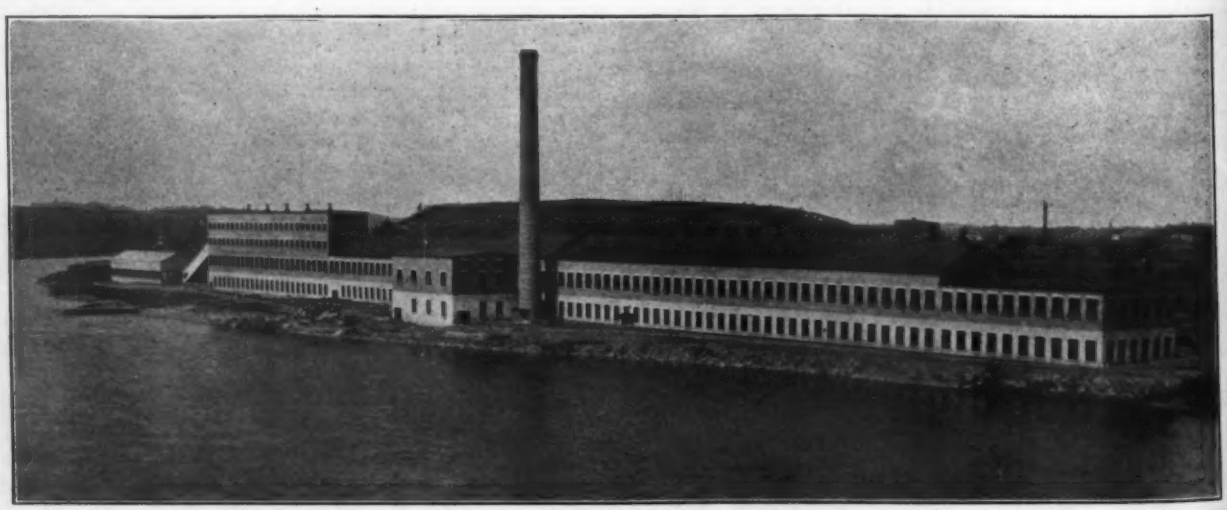
It is the intention of the company, in the near future, to erect assembling plants at Montreal, Que., Winnipeg, Man., and some place in the Maritime Provinces, which location has not yet been definitely decided upon.

Changes in Georgetown Coated Paper Mills

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 24, 1927.—There have been some changes in the Georgetown Coated Paper Mills, Georgetown, Ont., the holdings of Herbert Gage, of Toronto, being acquired by other interests. Mr. Gage has retired from the firm which he has represented in a sales capacity for some years. L. E. Fleck, of Georgetown, who was formerly vice president and manager, is now president and managing director. J. A. Willoughby, of Toronto and Georgetown, is vice president, and John Bingham, secretary-treasurer. John D. Montgomery, of Toronto, has been elected a director.

The plant, which is equipped with six coating machines, turns out coated papers and cardboards and it is the intention to add some new lines. The company has just been granted a provincial charter, with head office in Georgetown. The capital is divided into 1,500 preference shares of the par value of $100 each and 10,000 common shares without par value. R. A. Daly & Co., of Toronto, have bought $200,000 6½, twenty year, first mortgage, sinking fund, gold bonds from the company, which are being offered to the public at 100 and interest, to yield 6½ per cent. The issue is secured by a first mortgage on the total assets of the company, which, at the present time, are equal to $493,524, or over $2,460 for each $1,000 bond of the issue. The net earnings available for bond interest for the past three years have averaged $65,717 per annum, or over five times the amount required for a full year's interest on the bonds.



NEW STRAW BOARD PLANT OF THE HINDE & DAUCH PAPER CO OF CANADA, LTD.

Completes $500,000 Boiler Installation

Early in June of This Year the River Raisin Paper Co. Swings Into Action at Its Plant at Monroe, Mich. the Third of Its Powerful Battery of Erie City Water Tube Boilers and Pulverizing Units—The New Power Plant Is a Model of Efficiency and Economy

Back in early 1925 it was clearly seen by the management of the River Raisin Paper Company, Monroe, Mich. that a central power plant must be projected at once. As is the case with any improvement, be it large or small, the object was to eliminate or cut down operating expenses and also to gain increased efficiency.

After a thorough study of all the methods advised to the management, a contract was signed May 8, 1925, with Erie City Iron Works, Erie, Pa., for the installing of three 1296 horse power Erie City Water Tube Boilers and pulverizing units.

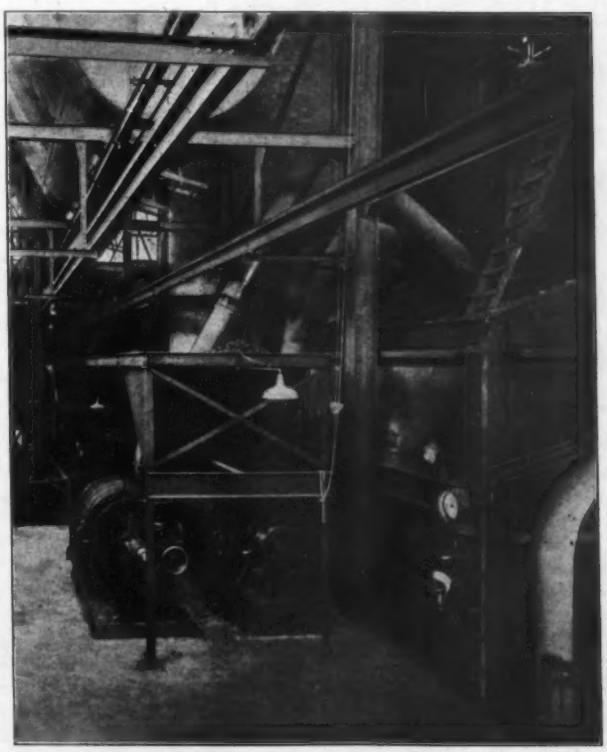
The first shipment of steel arrived at the plant October 12, 1925, and was for use in the raising of the old boiler room roof. This roof was about thirty feet high, and as the new boilers were forty-seven feet high alone, and to give ample clearage for the roof trusses, it was found necessary to carry the building up to a height of fifty-nine feet.

Structural steel workers were kept busy the winter of 1925 at the job of raising the roof and tearing out the old boilers. Only a few of the old Erie chain stoker boilers were dismantled at first, as it was essential that the wheels of industry be kept going throughout all the plants. To have torn down all the boilers that were to be taken out in one complete sweep, the whole job no doubt would have been completed more rapidly. But at the same time it would have compelled the shutting down of 3-4 Mills and Container Plants, Corrugated Division and the Silicate Plant.

Under the watchful eye of Grant E. Miller, River Raisin's chief engineer, the work progressed along very smoothly. "Katrinka," as No. 1 Erie City Water Tube Boiler was christened at the time, was fired up and produced steam June 1, 1926. After exhaustive tests she was passed and work on No. 2 rushed. This one was completed in a relative short time and received its baptismal fire on December 4, 1926. Monday, June 6, 1927, saw the third of this now powerful battery swing into action under fire and making steam.

Each of these three new boilers has 840 bent steel tubes, 3¼ inches in diameter and range from 12 to 22 feet in length. The new boilers are 47 feet high, and three carloads or 92,000 fire brick went into the construction of each unit. When full of water each boiler weighs 1,154,000 pounds.

The three new boilers have a combined rating of 3,888 horse power and can be operated successfully at a 180 per cent rating. The log for June 7 showed them delivering 7,100 horse power at a fuel cost of 2.72 pounds of coal per horsepower hour, and with an 11 pound water evaporation per pound of coal. No. 3 boiler (new) was operating on a 50 per cent basis.



SHOWING BATTERY OF ERIE CITY PULVERIZERS. TWO ARE USED BEFORE EACH OF THREE ERIE CITY 1296 H.P. THREE DRUM BOILERS

The thirteen boilers at 1 and 2 Plants discontinued, and the eleven torn out and 3 and 4 had a combined capacity of 6,590 horse power. To deliver the 7,100 horse power with the new boilers it required 245 tons of coal, fed automatically to them. Four hundred tons had to be laboriously fed into the old boilers to produce the 6,590 horse power. Sixty men were needed to operate the old equipment, whereas but seventeen are now on the boiler room payroll.

Process of Handling the Coal

The coal used to fire the three new boilers is either loaded from the huge outside stock piles into railroad cars and delivered to the boiler room, or is switched directly into the plant in the cars shipped to us. All loading of cars from stock pile and the necessary moving of cars is done by the new Ohio locomotive crane.

Coal cars are spotted over an unloading pit and the bottoms opened. This allows the coal to run into a storage hopper, from which it passes through a Beaumont double roll crusher equipped with an automatic feeder. The large lumps are here reduced to the proper size for handling in the pulverizers. From the crusher the coal passes over a Beaumont magnetis separator, which picks out the tramp iron, thus eliminating much damage that might be done to the pulverizing machinery by a stray piece of iron becoming entangled in moving parts.

From here the coal is taken on an apron conveyor and is delivered into a skip hoist, which elevates it above the boiler room roof and is spouted into one of two storage bunkers. Each of these bunkers has a storage capacity of 250 tons, about five car loads. The coal is then in turn taken from the bottom of the bunkers into the hopper, of a weight lory, and is automatically weighed, conveyed, and dumped into hoppers of one of the pulverizers. Six Erie City pulverizers, each with a pulverizing capacity of 4,000 pounds per hour, reduce the coal into very minute particles, little more than dust. It is then blown into the boilers and ignites instantaneously with a tremendous heating power.

Ashes, the By-Product

In all methods of manufacture, be it paper making, food packing, or steam producing, there must be some refuse. To the manufacturer who can cut his waste to the very closest margin goes the greatest succes, and the biggest profit. To make

steam, which is the object of all good boilers, to make it at a low cost, it then remains for the engineer to cut the amount of ashes, or cinders, that he gets from the coal burned to the utmost extent.

The mills' engineers have certainly taken a very generous per cent off the amount of waste formerly had from the old boilers. About three car loads of ashes had to be disposed of each day from the old boilers, and at a huge cost, not only of handling, but in the large per cent of combustible coal in these ashes that couldn't be made to burn in the old equipment. From the new E. ie City boilers only two and one-half car loads of this refuse a week are now being handled at a very small cost.

The Erie City boilers are equipped with Allen-Sherman-Hoff ash sluice-ways. The ashes as they fall to the bottom of the boilers are washed to a main sump and pumped from there into a settling basin outside the building. This basin has a 2,000 cubic foot capacity. When sufficient ashes are on hand they are loaded into cars by the locomotive crane and hauled away. From the time the ashes are made until they are in the cars no dust is in evidence, owing to the ashes being completely submerged in water from the time they are made until they are hauled away. Very few ashes, or cinders, are now being trucked away for local purposes.

BOILER REPORTS FOR A WEEK
REPORT OF BOILERS NO. 1 and NO. 2, RIVER RAISIN PAPER COMPANY, WEEK OF FEBUARY 14

Boiler No. 1		Boiler No. 2	
Feb. 14—		Feb. 14—	
Day	2596 h.p.	Day	2596 h.p.
Night	2580 h.p.	Night	2516 h.p.
24 hrs.	2588 h.p.	24 hrs.	2556 h.p.
Coal 24 hrs.	88.41 tons	Coal 24 hrs.	85.96 tons
Coal per h.p.	2.84 lbs.	Coal per h.p.	2.79 lbs.
Evap.	10.57 lbs.	Evap.	10.75 lbs.
Feb. 15—		Feb. 15—	
Day	2830 h.p.	Day	2833 h.p.
Night	2660 h.p.	Night	2675 h.p.
24 hrs.	2745 h.p.	24 hrs.	2754 h.p.
Coal 24 hrs.	95.77 tons	Coal per 24 hrs.	96.55 tons
Coal per h.p.	2.90 lbs.	Coal per h.p.	2.91 lbs.
Evap.	10.34 lbs.	Evap.	10.31 lbs.
Feb. 16—		Feb. 16—	
Day	2760 h.p.	Day	2762 h.p.
Night	2720 h.p.	Night	2746 h.p.
24 hrs.	2740 h.p.	24 hrs.	2754 h.p.
Coal 24 hrs.	90.30 tons	Coal 24 hrs.	96.01 tons
Coal per h.p.	2.75 lbs.	Coal per h.p.	2.89 lbs.
Evap.	10.93 lbs.	Evap.	10.36 lbs.
Feb. 17—		Feb. 17—	
Day	2816 h.p.	Day	2833 h.p.
Night	2708 h.p.	Night	2785 h.p.
Coal 24 hrs.	96.07 tons	24 hrs.	2809 h.p.
Coal per h.p.	2.89 lbs.	Coal 24 hrs.	93.92 tons
24 hrs.	2762 h.p.	Coal per h.p.	2.78 lbs.
Evap.	10.40 lbs.	Evap.	10.79 lbs.
Feb. 18—		Feb. 18—	
Day	2750 h.p.	Day	2796 h.p.
Night	2716 h.p.	Night	2760 h.p.
24 hrs.	2733 h.p.	24 hrs.	2778 h.p.
Coal 24 hrs.	93.50 tons	Coal 24 hrs.	93.66 tons
Coal per h.p.	2.85 lbs.	Coal per h.p.	2.79 lbs.
Evap.	10.50 lbs.	Evap.	10.75 lbs.
		Feb. 19—	
		Day	1696 h.p.
		Night	1571 h.p.
		24 hrs.	1637 h.p.
		Coal 24 hrs.	56.76 tons
		Coal per h.p.	2.90 lbs.
		Evap.	10.41 lbs.

Analysis of Coal Burned

An analysis of the kinds of coal burned will indicate one of the advantages that pulverizers offer. The Erie City Unitype gives good results with almost any kind of coal.

Figures taken from the Chief Engineer's Log book indicate that coals of almost every description were used.

No. Samples Taken	B.t.u.	Ash	Moisture
1	12,200	17.50	1.89
2	13,300	10.50	1.42
3	13,100	10.48	1.92
4	10,300	14.00	6.70
5	12,000	8.50	6.90
6	12,300	16.60	2.24
7	12,800	12.50	3.50
8	12,000	7.78	9.10
9	11,300	21.55	1.73
10	14,000	5.65	1.13
11	13,000	12.55	1.12
12	12,760	3.74	9.00
13	14,400	3.15	2.54
14	14,500	4.78	1.80
15	13,820	7.15	1.20
16	12,300	10.60	4.39
17	14,000	5.61	2.70

The following figures on capacity were also obtained. Results given are for one boiler.

Nov.	H.P. Day	H.P. Night	H.P. Ave. 24 hours	Tons Coal per 24 hr.	Coal per h.p.	Evap.
2	2721	2673	2697	96.19	2.97	10.10
3	2704	2552	2628	97.19	3.08	9.74
4	2846	2714	2780	102.17	3.06	9.80
5	2542	2621	2581	95.62	3.09	9.71
8	2800	2658	2729	103.04	3.14	9.54
9	2804	2846	2825	99.19	2.97	10.10
10	2810	2689	2749	95.44	2.90	10.35
11	2842	2804	2823	99.10	2.92	10.27
16	2820	2290	2555	91.40	2.98	10.06
Average 21½ days			2718	97.23	2.98	10.06

Octcber—	Ave. h.p. 24 hr. day	Tons Coal per day	Coal per h.p. hr.	Evap.
23 full days	2696	96.12	2.97	10.10

The River Raisin Paper Company feel confident now in view of their operation of the two new boilers that they will show a coal saving of 150 tons per day over their previous operation. Their operating force will be reduced from something like 50 men to 12 men per 24 hours.

The condensation from the heating system and machine driers is pumped into a 3,000 horse power Hoppes Open Feed Water Heater. The make-up water is taken from the city mains and passed through a Permutit softening system, and then goes into the Hoppes heater. This heater gives a temperature of 224 degrees Fahrenheit on the water. From the heater the water passes to a 3-stage double-suction Impeller Worthington feed water pump. This pump is driven by a 125 horse power Allis-Chalmers induction motor, and has a capacity of 750 gallons per minute. After passing through the pump it is forced direct into the boilers through a Copes automatic feed water regulator.

The electric power needed to run the boiler room is furnished from the main switch board in 3-4 Engine Room. It is controlled by two 800 ampere double throw oil switches, giving two sources of supply for the power furnished. There are two large distributing panels in the boiler room connected with the switches by 1,200,000 circular mils wire, which is capable of carrying 730 amperes of current to each of the distributing panels without any danger of overloading. The power is distributed to the different motors from these panels. The wiring and equipment installed is capable of servicing five boilers of the same size already in.

Twenty motors with a combined rating of 935 horse power are needed to operate the three new boilers. These motors range in size from the 125 horse power motor on the boiler feed pump down to one of 2 horse power on the generator furnishing "juice" to the magnetic separator.

All electrical installations were made under the supervision of Mr. V. O. Giffin, chief electrician.

Mr. Grant Miller, who has been with the River Raisin Paper Company as chief engineer since September, 1921,. has been the guiding hand on this big project. Much of the success of the undertaking can be easily traced directly to his keen foresight.

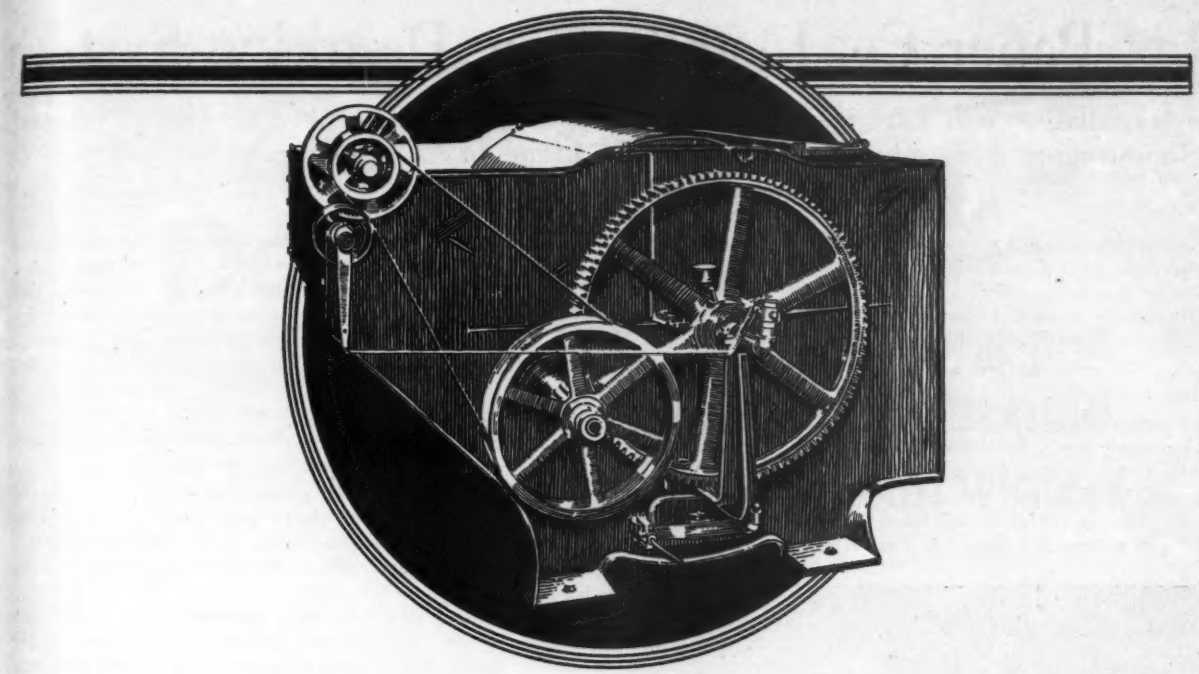
Hardy S. Ferguson To Prepare Plans

The Union Bag and Paper Corporation writes: "We notice in your issue of October 20, under heading, 'Construction News, Tacoma, Wash.,' you publish a statement that L. A. DeGuerre, Wisconsin Rapids, Wis., mill engineer, has been retained by Union Bag and Paper Corporation, Woolworth Building, New York, and the St. Paul & Tacoma Lumber Company, Tacoma, to prepare plans for the proposed new pulp and paper mill to be constructed on site near Tacoma.

"Mr. DeGuerre has not been retained by Union Bag and Paper Corporation and has no connection whatever with our proposed mill.

"Union Bag and Paper Power Corporation, a subsidiary of Union Bag and Paper Corporation, does intend to construct a four digester kraft pulp mill with a capacity of approximately 120 tons per day on property in Tacoma adjoining property owned by the St. Paul & Tacoma Lumber Company.

"Hardy S. Ferguson, mill engineer, at 200 Fifth Ave., New York City, has been retained by Union Bag and Paper Power Corporation to prepare plans for the proposed kraft pulp mill."



High earning power

The Bird Save-All recovers a high percentage of the solids from the white water. It does this at such small cost that the recovered fibre represents as nearly as possible a clear profit.

Isn't that your idea of a Save-All?

The BIRD SAVE-ALL

BIRD MACHINERY

BIRD MACHINE COMPANY ~ South Walpole, Massachusetts

1354

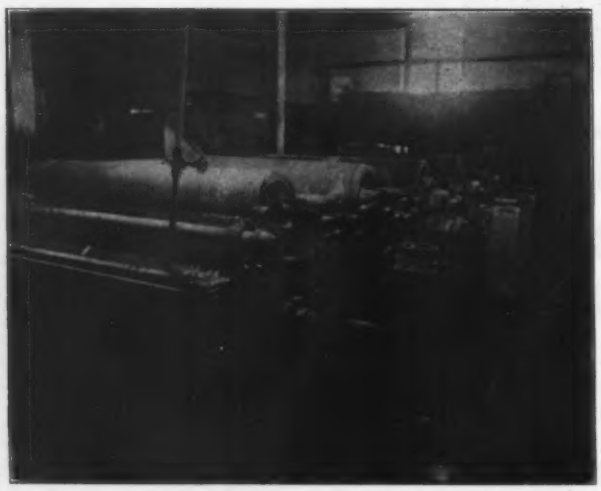
Rex Paper Co. Installs New Deinking System

New Installation Will Effect Considerable Economy—The Finished Product Shows Marked Improvement in Cleanliness, Brightness of Stock and In All the Characteristics of the Better Grade of Coating Raw Stock

An entirely new and different deinking, bleaching and washing system was decided upon some time ago by the Rex Paper Company of Kalamazoo, Mich. Considerable time and money was spent inspecting and investigating different methods used in plants in different parts of the country.

A New Eight Inch Well

After a decision was reached as to just what was wanted to suit particular requirements, it became evident that the present water supply would be inadequate. At the out-set, therefore, a contract was entered into with Frank P. Rust of Detroit for another eight inch well. After several attempts a well was sunk giving the required additional volume of water, viz., about one thousand gallons a minute. A pump house was erected and a



NEW SYSTEM AT REX PAPER CO. PLANT

motor driven Sterling pump installed. The tests of the water from the wells proved it to be of the very best quality for paper making. The very foundation of paper making, an excellent and ample water supply, being assured, the next step as a matter of thoroughness and to assure the elimination of algae was the installation of filters purchased from the Norwood Engineering Company.

A New Bleach Plant

A new bleach plant was installed in a new concrete building separate from the mill; thus planned to avoid the usual effects of corrosion incident to this operation. The equipment consists of one large mixing, and two storage tanks. This arrangement produces the maximum value from the bleaching powder. The bleach liquor is pumped direct to the discharge box of the washer, and together with the washed stock passes into the bleaching tank.

The Cooking Unit

The cooking unit consists of a large steel breaker beater located in the sorting room. The sorted stock is mechanically fed to this breaker beater and broken up under steam, whence it is dropped to the cookers proper. These are two circulating tanks, seven feet in diameter and thirty feet high, furnished by the Leitelt Iron Works of Grand Rapids, Mich. The stock is circulated by Bahr refiners, being drawn from the bottom of the cookers back to the top where it is spilled against baffle plates, thoroughly breaking it up. From the cookers it is piped to a large steel tank, from which it is drawn to the five cylinder continuous washer supplied by E. D. Jones & Sons Company. Each of the cylinders in this machine is 36 inches in diameter and 72 inch face, and against each one is operated a couch roll. The pressure of the couch roll against the cylinder squeezes the water from the fiber as it passes through, making the washing process very thorough.

Bleach Tank and Washer

From this washer the stock passes to the floor below into the bleaching tank, the bleaching liquor being added at the point the stock leaves the washer, as described above. The bleaching tank is equipped with agitators which keep the stock circulating during this process.

From the bleach tank the stock is pumped back up to the bleach washer. This is a two cylinder, continuous, E. D. Jones & Son Company washer, of the same construction as the one previously described. This operation removes all traces of bleach from the fiber while giving the washing process added thoroughness.

After the bleaching and final washing processes the stock is stored in two large wooden tanks, which were purchased from the Kalamazoo Tank and Silo Company, ready to be supplied to the beaters.

The production of the continuous washers is two thousand pounds per hour.

Auxiliary Machinery

The operation of the new machinery described necessitated the installation of considerable auxiliary equipment. Practically all of it being motor driven, a good many motors, most of them Reliance, were purchased. A Skinner Universal Uniflow engine and generator set was added to the power plant to supply the necessary additional current. This in turn required the purchase of a condenser.

Water Lines Replaced with Galvanized Pipe

All water lines were replaced with galvanized pipe, and new spouting was put in. Changes in the arrangement of machinery were sometimes necessary to accommodate the new equipment, and all in all the accomplishment was not a small one considering that operations were carried on without interruptions at the same time.

Functioning Satisfactorily

This new equipment is now functioning satisfactorily and all the little difficulties incident to starting up new machinery have been ironed out. The finished product shows marked improvement in cleanliness, brightness of stock and in fact in about all the characteristics of the better grade of coating rawstock.

Sunnyside Island To Have Paper Mill

ALBANY, N. Y., October 24, 1927.—Sunnyside Island, near Castleton, is being filled with sand brought up from the river bed by suction dredge, the Norfolk, Captain W. Kennedy commanding. It is expected that the filling will be finished this week. As soon as the fill is settled, the property will be at the disposal of the bidders for the contract for the erection of a modern paper board mill which is to be built and run by the Ingalls Company, of which Edmund Ingalls of Sastleton, is general manager. It is expected that the plant will be completed by the first of the year.

Do You Recall—

that Heating and Ventilating trouble that bothered you last winter?

Fog! Drip! Lack of Heat! Excessive Steam Costs!—whatever it was it gave you needless work and worry. At the time you were determined to correct the condition.

But the condition improved as warm weather approached. For a few summer months your troubles disappeared. Unhampered production erased the memory of the winter worries—temporarily at least.

And now cold weather again approaches with its ominous threat to repeat your winter woe. Now you recall that heating and ventilating trouble. It will be with you again. Are you willing to struggle with it this winter? Or will you take some action now to prevent its recurrence?

Let Our Experience Save You Money

Our engineers can help you. More than likely they have remedied a like condition in mills similar to yours. Discussing your problem with them puts you under no obligation. Get in touch with us now —while there is still time.

J. O. ROSS ENGINEERING CORPORATION

208 W. Washington Street **Main Office** **117 Tacoma Avenue**
CHICAGO **30 E. 42nd STREET, NEW YORK** **TACOMA, WASH.**

ROSS ENGINEERING OF CANADA, LIMITED
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

Ruths Accumulator in the Paper Industry

Far Reaching Effect of the Accumulator Upon the Operation of a Pulp and Paper Mill Shown to Good Advantage at New Plant of Price Bros. & Co., Ltd., at River Bend—Other Installations in the United States and Canada

The first requirement of every industrial plant is to reach the greatest possible output, commensurate with quality, of course, with the lowest possible capital investment. Any method which will add to the normal production of the plant without increasing this capital investment will add materially to the profits.

An industry using as much steam for the manufacturing process as pulp and paper making must have an abundant supply of steam available if maximum production is obtained. It must be supplied when it is needed and in the quantity it is needed. Such requirements cause extreme variations in the steam load but in spite of this fact the boiler house is expected to show a reasonably high efficiency. These two requirements are diametrically opposed to each other.

The best boiler house results cannot be obtained with a fluctuating steam load. On the other hand, maximum production cannot be obtained if the supply of steam to the mill is restricted to favor the boiler house. To be sure, a sort of balance may be effected, improving one by sacrificing the other, but the Ruths Accumulator provides the only way to meet a fluctuating steam demand and at the same time keep the boiler load uniform and the rate of firing constant. With the accumulator absorbing the fluctuations, fuel and air supply may be kept at the proper adjustment to continuously obtain the highest possible boiler efficiency. The uniform furnace temperature resulting from such operation will greatly reduce maintenance costs by eliminating the continual expansion and contraction of boilers and settings which occur when the boiler output is variable.

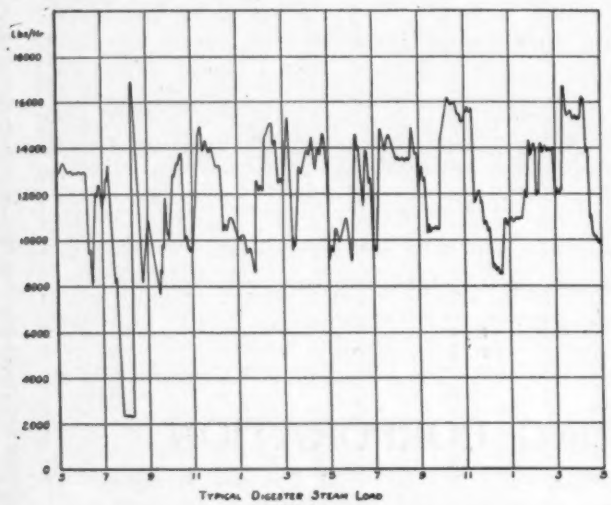


FIG. 1

Typical Digester Steam Load.

Of perhaps more importance is the fact that steam from the accumulator is instantly available at a rate restricted only by the steam piping. It will meet a sudden demand for steam far more quickly than the boilers would be able to supply it. Consequently, the usual time lag between demand and supply is eliminated. The "heating-up" time of digesters is reduced—often cut in half—and steam pressures throughout the mill are always uniform regardless of these sudden heavy demands for steam.

Fig. 1 shows a typical digester steam load and because of this extremely variable demand, more Ruths Accumulators are installed in pulp and paper mills than in any other line of industry.

The far reaching effect of the accumulator upon the operation of a pulp and paper mill is shown to good advantage at the new news print mill of Price Brothers & Co., Ltd., at Riverbend, Que.

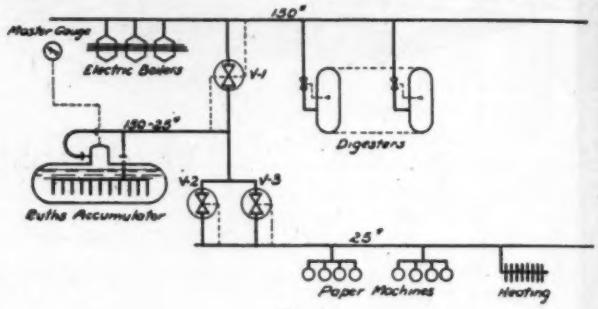


FIG. 2

Arrangement Diagram.

Fig. 2 shows diagramatically the method of connecting the accumulator to the steam distribution system.

In planning the Price Brothers mill, the boiler house was dimensioned for the average load only. A Ruths Accumulator, of sufficient capacity to absorb the variations in the steam demand,

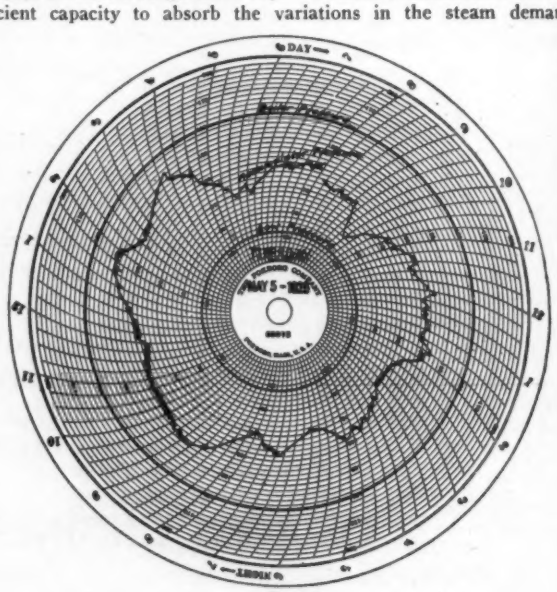


FIG. 3

Typical Pressure Chart Showing Operation of Accumulator.

made it possible to reduce the first cost of the boiler installation. Without the accumulator it would have been necessary to provide enough steam generating capacity to meet the maximum peak load. Moreover, as all steam is generated by electric boilers, the accumulator, in addition to reducing the capital investment, provides a means for the automatic control of these boilers; an important feature when the variable nature of the load is considered.

The operation of the accumulator may be clearly visualized by reference to Fig. 2. The boilers generate steam at a constant uniform rate. The digesters are supplied with steam directly from

EMERSON MFG. CO.

Resumes Operation in New Up-to-date Plant

THE new Emerson Plant has been completed and production is now under way in the most modern and efficient factory that skilled engineering could design. A complete equipment of the heaviest modern machinery makes it possible to handle your work expeditiously and economically.

All drawings, data and patterns were saved from the fire which destroyed the old plant. In consequence you can be promptly supplied with any replacement or repair parts for Emerson Paper Mill Equipment previously installed.

Under present advantageous conditions you are assured a more valuable service than ever before in Emerson history.

While manufacturing an extensive line of paper mill machinery which fully meets the requirements of all classes of paper production, your especial attention is called to our Heavy Duty Beater Rolls and Refiner Plugs.

Emerson Beaters and Refiners are designed and constructed to stand up under the most exacting conditions. They cannot be surpassed in their ability to take punishment. The Emerson reputation has been built on the long and uniform service of machines operating under strain and stress.

All Emerson Beaters and Refiners are regularly equipped with Bolton Quality Steel, Bronze, or Stainless Steel Knives.

Emerson Manufacturing Company

LAWRENCE, MASS.

the main boiler line at 150 lbs. pressure. The dryers and the mill heating system are taken care of by 25 lb. steam.

Assuming that the steam demand of the mill should, for a time, correspond to the boiler output, a certain amount would be used by the digesters and the balance pass through the Ruths governor valve V-1 into the low pressure system. Under these conditions no steam would enter or leave the accumulator.

If, however, a peak occurs in the steam consumption of the mill, for instance in the digester house, the 150 lb. pressure would tend to drop. A very slight decrease in this pressure will close valve V-1 to a point sufficient to maintain the 150 lb. pressure practically constant. Consequently, less steam will be delivered through valve V-1 to the low pressure line. This will cause valve V-2 to open wider and the pressure in the accumulator line to drop. Instantly steam will be discharged from the accumulator to the low pressure system. Thus the accumulator, by relieving the boilers of the low pressure load has taken care of a peak load in the digester house.

Should the reverse take place and the consumption of high pressure decrease, valve V-1 will open wider and automatically pass the excess steam to the accumulator for use in meeting the next peak load.

The ability of the accumulator to completely absorb all fluctuations whenever they occur is shown by reference to Fig. 3. This is a reproduction from an actual chart showing the constant pressures maintained at the boilers and in the low pressure system.

A good example of the accumulator applied to a coal fired plant is found at the Algonquin Paper Corporation in Ogdensburg, N. Y. Here the paper machine is driven by a non-condensing turbine. Before the accumulator was installed considerable difficulty was caused by variations in the speed of this turbine due to a fluctuating boiler pressure. Occasionally the variation resulted in paper breakage which, of course, seriously interfered with production.

With the accumulator, the boiler pressure is automatically kept constant, the turbine speed remains constant, the production of paper increased and a more uniform quality obtained. All this is

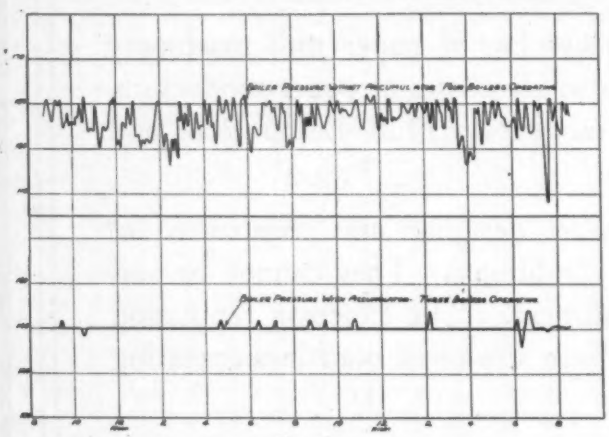


FIG. 4

Chart Showing Boiler Pressure with Three Boilers and Accumulator as Compared with Four Boilers without Accumulator.

accomplished with three boilers whereas four were in service before the accumulator was started.

At the above mill it was recently necessary to operate without the accumulator for a short time while repairs to steam piping were being made. During this time it was necessary to operate four boilers instead of three and even then it was impossible to maintain a uniform boiler pressure. The pressure with four boilers without the accumulator as compared with the pressure with three boilers and the accumulator is shown in Fig. 5.

The accumulator applications referred to in the foregoing paragraphs have been made in comparatively low pressure plants. However, the use of higher steam pressures is increasing rapidly. Pressures of 400 lbs. and over are not uncommon. In such installations the water space in the boilers, which is to some extent a steam accumulator, must be kept to a minimum. The steam

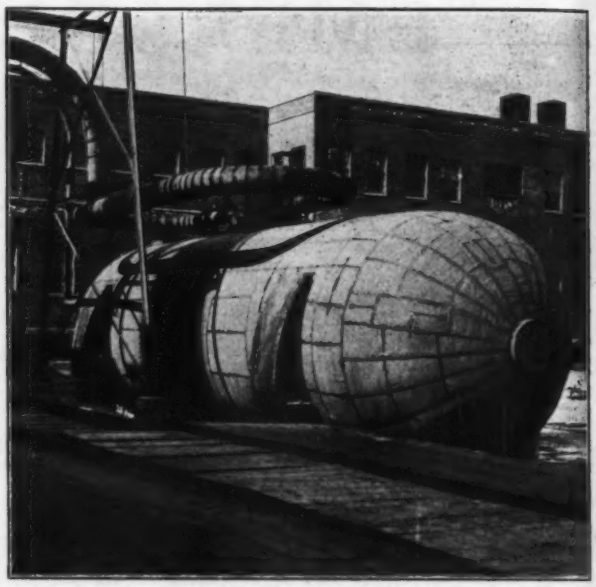


FIG. 5

Ruths Accumulator Installed at Price Bros. & Co., Ltd., Riverbend, Quebec.

drum must be of small diameter to keep the shell thickness within reasonable limits.

Fig. 6 illustrates the manner in which a Ruths Accumulator may be applied to a high pressure (400 lb.) plant.

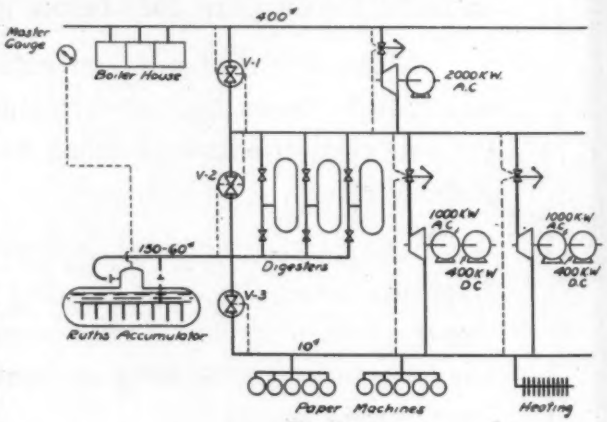
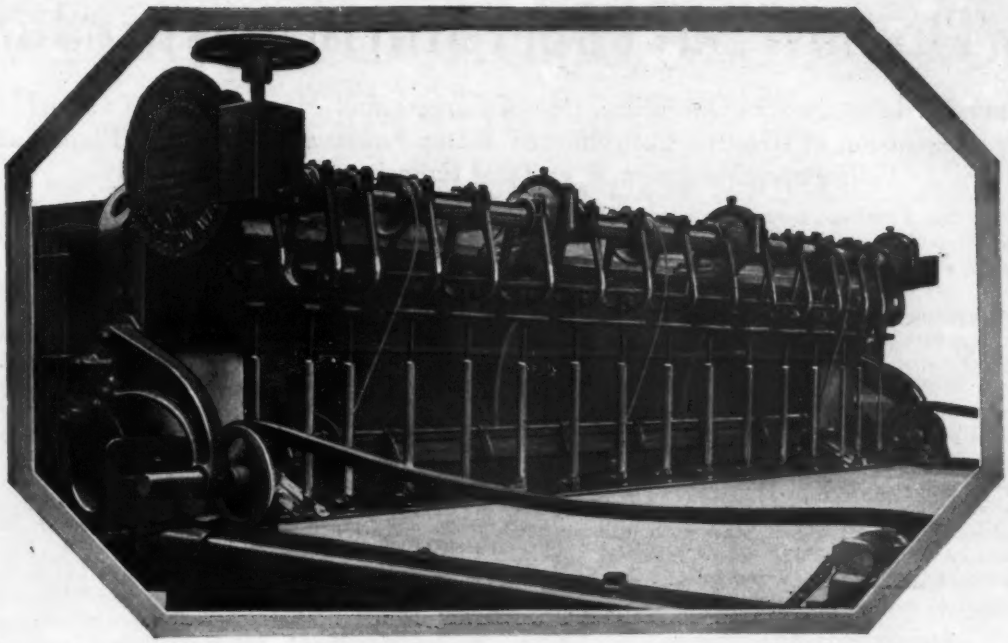


FIG. 6

Arrangement Diagram Pulp and Paper Mill with Accumulator and High Pressure Boilers.

Over a hundred pulp and paper mills throughout the world have been equipped with Ruths Accumulators. Those installed in the United States and Canada are listed below.

Name and location	Pressure range	Storage capacity in lbs. of steam
Brown Corp., La Tuque, Quebec	125—15 lbs.	14,500 lbs.
Newfoundland Power & Paper Corp., Ltd., Cornerbrook, Newfoundland	150—20 lbs.	30,000 lbs.
International Paper Co., Piercefield, N. Y.	100—15 lbs.	27,000 lbs.
International Paper Co., Niagara Falls, N. Y.	130—30 lbs.	25,000 lbs.
Price Bros. & Co., Ltd., Riverbend, Quebec	150—25 lbs.	40,500 lbs.
St. Lawrence Paper Mills, Ltd., Three Rivers, Quebec	150—25 lbs.	22,000 lbs.
Bogalusa Paper Co., Bogalusa, La.	150—15 lbs.	40,000 lbs.
Algonquin Paper Corp., Ogdensburg, N. Y.	165—80 lbs.	15,000 lbs.
Manitoba Paper Co., Pine Falls, Manitoba	200—30 lbs.	37,500 lbs.
International Paper Co., Gatineau, Quebec	200—125 lbs.	11,500 lbs.



Over 100 Repeat Orders~

The Voith Inlet not only is installed on one machine but after being in operation for a time, another is installed—and in one mill as many as thirteen. This wide acceptance is proof that the Voith Inlet is right—that it is a profit-making piece of equipment. *It repeats because it performs.*

Easy to install and easy to operate, the Voith Inlet will increase production more than 10% over the old slice method, depending on drying capacity and the mill's auxiliary equipment, producing *better paper at a lower cost.* Wires last from 10% to 15% longer. There are fewer breaks to cause shutdown of paper machines.

The Voith Inlet can be equipped with our perfected Deckling-In Device for adjustment between deckles. With this device the Voith Inlet allows the operator to deckle-in *while the paper machine is running*—eliminating former inconveniences and increasing the tonnage of paper machines.

Let us show you why over 100 repeat orders have been received on the Voith Inlet. An attractive booklet with complete information will be sent upon request. Ask for your copy *now.*

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: 350 Madison Avenue

Western Mfg. & Sales Div., Smith & Valley I. W. Co., Portland, Oregon.

New Thunder Bay Paper Mill Begins Production

First Paper Machine, Now in Operation, One of Largest and Most Modern in World Today—Future Expansion of Gigantic Consolidated Water Power and Paper Co. Plant Calls for Four Paper Machines With Total Capacity of 500 Tons Daily

Slightly more than a year ago ground was broken for the new Thunder Bay Paper Mill of the Consolidated Water Power and Paper Company, at Port Arthur, Ont., and today a gigantic institution rises to view. Its machinery is the best that money could buy and the scientific arrangement of buildings permits ample expansion in any direction.

The first paper machine, now in operation, was manufactured by the Beloit Iron Works, makers of all Consolidated machines, and is 234 inches in width and capable of running at speeds well over a thousand feet per minute. It possesses every modern feature known to paper making, including a Briner Economizer, Beloit Suction Rolls, Harland Electrical Sectional Drive and miscellaneous innovations designed for maximum efficiency.

The second paper machine is eleven inches wider than the first, and both combined will produce 250 tons of paper per day. Future expansion will bring the total capacity to 500 tons per day, with four paper machines in operation.

Transportation Arrangements

Finished paper in the form of shipping rolls will be transported by conveyor to the proposed warehouse on the lake front dock, there to be transferred to ships during navigation season and to railway cars in winter. The dock itself will be built in two sections, the total surface to be 320,000 square feet. One side will be reserved for incoming materials such as coal, sulphur and limestone, and the other section will be used for the loading of paper. George C. Schneider, manager of Newaygo Company, was instrumental in securing government support in the dredging of the slip, and the engineering plans were formulated by R. C. Buck, of Superior, Thos. Utegaard and W. E. Beadle, of Consolidated, and E. Y. Harcourt, district engineer, Department of Public Works, Dominion of Canada.

Wood and Grinder Rooms

The wood room began operations June 4. This department contains two Murray slashers, Canadian rotary barking drums, Carthage chipping equipment and Link Belt conveyor chains. Wood for the grinder room is conveyed to the wood bins and thence to the grinders. The grinder room, which was practically complete May 15, is equipped with four sets of four-pocket grinders driven by fifteen hundred horse power motors.

A long conveyor carries chips from the wood room to the digesters. The sulphite mill is complete in every detail, containing two Horton steel digesters and Jenssen acid towers and sulphur burners, these burners being located on the digester charging-floor level.

The Boiler Plant

The boiler plant is composed of the best scientific apparatus for the economical production of high pressure steam. Two Babcock-Wilcox and Goldie-McCulloch boilers, rated at 1,000 horse power each, are complete and running. Pressure up to 400 pounds is carried in each. Along with each boiler is an air preheater and water economizer, and thus the waste gases are utilized for raising the temperature of air and feed water. A Nordstrum bark dryer, built by the Combustion Engineering Company, takes wood room refuse and reduces it to suitable condition to be used as fuel.

All steam generated by the boilers passes through a 3,125 KVA General Electric double extraction turbine carrying two back pressures of 25 and 125 pounds, respectively.

The stock system is handled in a manner conducive to best and most uniform conditions. Sherbrooke centrifugal screens and deckers are conveniently located for thorough removal of tailings and reduction of stock to proper density. The paper machine is equipped with consistency regulators to insure against variations. The mixing system, invented by W. E. Beadle, and used at the other divisions, is an important feature of the new machine. The white water system is devised in a manner which guarantees a satisfactory re-circulation and minimum waste. The entire plan for stock control will be important in the production of a high quality of paper.

Nipigon Power Supplies New Mill

Probably the source of power for operating the mill is as interesting as the paper machine and the mill proper. The power for driving the grinders, wood room and probably part of the paper mill will be supplied by the Hydro-Electric Power Commission of Ontario, through the Public Utilities Commission of Port Arthur. For at least several years this power will be generated at the Cameron Falls plant located on the Nipigon River, about fourteen miles north of the village of Nipigon and approximately eighty-eight miles distant from the new mill.

The Nipigon power development compares favorably with the power developments at Niagara Falls. While they are somewhat smaller in magnitude, the large pondage or storage of water in Lake Nipigon corresponds to the storage of water in Lake Erie. The area of Lake Nipigon is 1,500 square miles and may be varied approximately seven feet. It has been estimated that this lake has sufficient storage to supply water to the water powers for an entire year should we have no rainfall whatever. From this, it is apparent that the new mill will never lack for a supply of continuous power.

Three Power Lines

There are three powers on the Nipigon River. The first one is at the outlet of the lake and is called Virgin Falls. At this point there is a dam now used for holding the water in the lake and regulating the flow therefrom. Here a fall of 54 feet can be developed producing 55,000 horse power. The next fall is called Alexander Landing. This plant is now under construction and will be finished early in 1930. It will develop a head of 47 feet and approximately 52,000 horse power.

The lower power is called Cameron Falls which develops a head of 72 feet and 75,000 horse power. This plant has been in operation for a number of years and supplies power to our Current River Pulp Mill. There are six units, each consisting of a 12,500 horse power water wheel and 10,600 KVA generator, producing power at 12,000 volts. The power is stepped up by means of transformers from 12,000 volts to 110,000 volts for transmission to Port Arthur and Fort William. At the present time there are two transmission lines connecting Cameron Falls with Port Arthur substation.

A third line will be completed the coming year. These lines will be so connected that, should trouble develop on any one line, it will be disconnected from the system at each end by means of oil circuit breakers, without interrupting the service that will continue over the remaining two lines.

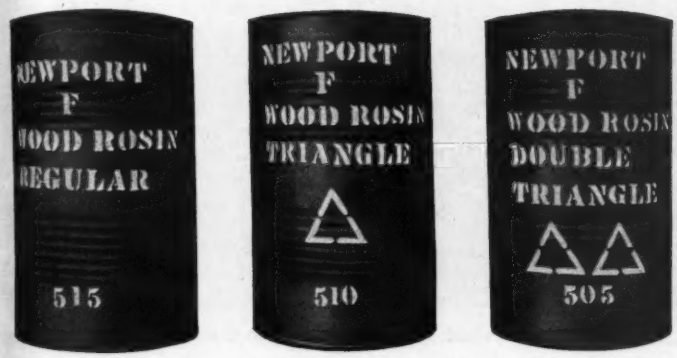
Loop System

Power will be furnished to the new mill at 110,000 volts and will eventually be part of a loop system which will insure continuous service at all times from the Bare Point station. The 110,000-

(*Continued on page 84*)

NEWPORT AND ACME WOOD ROSIN IN DRUMS

ECONOMICALLY CORRECT PRODUCTS AND PACKAGES



The usefulness of Newport and Acme Wood Rosin is constantly growing more profitable to the paper making industry.

Modern method of producing insures Newport and Acme to be clean Rosin of exact chemical uniformity.

Newport and Acme Wood Rosin are comparable to "F" in color.

Selling Newport and Acme Wood Rosin in Drums Meets Buyers' Demand for Rosin on a Net Weight Basis

Quotations on Newport and Acme Wood Rosin for shipment in drums are based on 235 pounds net for standard.

No tare, no waste, no staves to cling to, therefore consumers gain the use of entire quantity received.

A carload of Newport and Acme Wood Rosin in drums, yields about one ton of metal that has certain scrap value.

Yearly production and consumption of Newport and Acme Wood Rosin is greater than ever, largely because rosin buyers recognize more and more the dependable quality, economic value and desirable savings realized when using Newport and Acme.

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The oldest and largest organization in the world exclusively engaged in marketing "Steam Distilled Wood Turpentines," Pine Oils, and Wood Rosin.

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A Clearing House of Real Value

Aim of the Power Plant Section

By Reginald Trautschold, Power Engineering Consultant of the Paper Trade Journal

Four months ago, a fortnightly discussion of the power plant equipment essential for the economical operation of pulp and paper mills was begun in these pages. Every two weeks, some familiar unit, device or accessory playing a part in power generation or distribution has been considered solely upon its demonstrated merits as a money saver in actual paper mill service. The one requisite has been that the unit in some modern, approved form should in several paper mill have affected a monetary saving of sufficient magnitude to have justified its purchase.

Not an Arduous Requirement

Surely such requirement is not arduous and it would appear a simple matter to unearth quantities of pertinent information concerning almost any and all power plant equipment employed in paper making. The paper mill user of the equipment is keenly interested in saving money by virtue of any investment he may have made. The producer of the equipment proving a profitable investment to his paper mill purchaser. Here is a community of interest of the most potent character—money making. In spite of this, it has proved an exceedingly difficult task to produce the simple evidence that the purchase of a certain device has enabled a paper mill to reduce its power costs in some way and indirectly its production costs.

The manufacturer of the device, in many cases, seems to have lost sight of the fact that his prosperity is inseparably associated with the satisfaction his products give his customers. He will marshal an imposing array of reasons why his device is really needed by the paper industry, as the skillful merchandiser always can, but when it comes to a plain statement of what the device will actually accomplish in the way of money saving and what it will cost to realize such accomplishment, he is very apt to take refuge behind claims of special conditions controlling the situation. In many instances, this is all humbug, or perhaps it is fairer to say that it is creating a mountain out of a mole hill. Standard equipment in more or less standardized service only is in question. Under such conditions, a definite value can almost invariably be placed upon the duty the device is called upon to perform and a fairly accurate determination of the cost of rendering such duty can be arrived at.

In a Precarious Position

The power plant equipment manufacturer who cannot state closely what it will cost to use the device he produces under known or determinable conditions is in a very precarious position. He has his interests and his money tied up in a product for which he has no means of ascertaining demand or value. He cannot tell from month to month whether he will make money or not, for he has little or no knowledge of the control he may have of his market. Of one thing he may be certain, however, and that is if his product does not make money for its purchasers, his market will be closed to him before long. His market is interested, not in his profiting from his activities, but in itself profiting from the patronage it may bestow upon him. The customer's own business and his interests are dominant—first, last and all the time. The manufacturer to succeed must know what his products will do and what it will cost to operate them. He must know costs.

It may not always be possible for a manufacturer to know these pertinent facts also concerning any and all competing products, though the conditions under which business is conducted today makes such knowledge almost a necessity in many cases. To ascertain these costs, meaning total cost and not simply purchase price, it would seem only necessary to go to the paper mill customer to secure the information at first hand. It should be, but it is almost unbelievable the lack of such knowledge which still pertains apparently in the average paper mill. If the equipment in question has stood up, works smoothly and there are no glaring inefficiencies outstanding to focus attention on wastes, the stamp of approval seems to have been earned in numerous establishments. When it comes to the question of whether the investment entailed in installing the equipment was justified, concrete evidence which can be expressed in monetary units is lacking much too frequently.

The investment was justified, yes, because some equipment was needed, but does the equipment effect a gain or saving which represents a profitable yield on the investment entailed? Will the economies realized serve to liquidate the investment rapidly enough to make the capital available for reinvestment in less time than if it had been otherwise employed? It is these considerations which really determine whether the investment was really justified. It is such questions, also which many mills apparently cannot answer.

Should Follow Sound Economic Lines

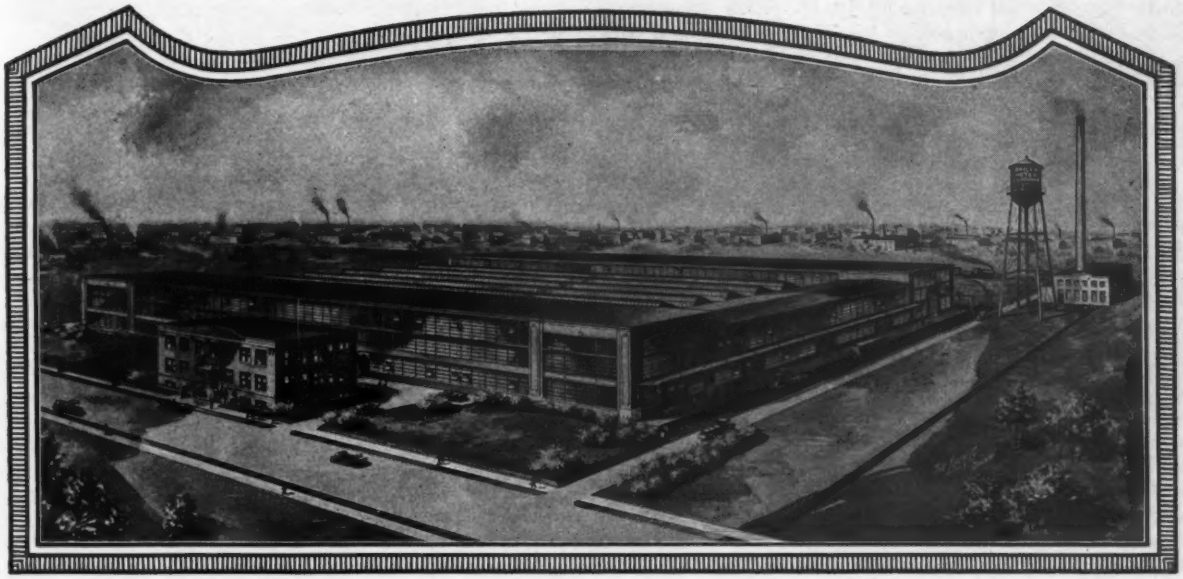
Does this mean that the truly remarkable growth and expansion in the paper trade field which has certainly taken place in recent years, developments which have made paper making one of the bellwether industries of the country, is of the nature of mushroom cultivation? Whether this is the case or not, is it not high time that the expansion of the paper industry be guided along sound economic lines? Only by wise direction, the careful weighing of each dollar expended by the industry, can the future prosperity of the industry be assured. It is one important step in such guidance that the PAPER TRADE JOURNAL has taken in inaugurating the Power Plant Section.

When the plan and objective of this undertaking was announced on June 23, a plea was made for the interested co-operation of pulp and paper mill users of power plant equipment and of the manufacturing producers of such equipment. This plea is made again, while at the same time acknowledging the splendid co-operation and assistance rendered to date by manufacturers and many of the more progressive mills. In four months, a good deal has been accomplished and much more should be gained in the months to come, for co-operation on the part of those who have most to gain only is necessary to insure effective and consistent progress. Much depends upon the assistance rendered by manufacturers of modern, approved power plant equipment, of course, but more upon effective assistance being rendered by the paper mills.

No Mill Operated at Maximum Efficiency

It is a commentary, far from being without parallel in other industries, that there is not a single paper mill in the country which is at present being operated at what may be termed feasible maximum efficiency. No, not a mill which is making proper and full use of all approved equipment units, investment in which would be well justified from a sound economic point of view, of equipment which is readily obtainable and can be installed with reasonable assurance of substantially cutting some operating cost, big or little This situation exists, furthermore, in conduct of the large, wealthy mill with heavy capital investment in plants of reputed high efficiency and with apparently a profitable and constant market for its output, as well as in the small mill pinched for money and struggling for a foothold in the industry.

As in many other lines of business, some of the most flagrant examples of poor engineering, of extravagant investment, of mistaken judgment in the selection of power plant equipment and of wasteful operations of all kinds are to be found among the large,



Announcement

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AUTOMATIC CONTROL SYSTEM

Unequalled facilities for the manufacture and service of power and industrial plant metering and control equipment is now assured by the Bailey Meter Company since it recently acquired the new factory building at 1056 Ivanhoe Road, Cleveland, Ohio, as shown above.

The rapid growth and development of the field for metering and combustion control equipment as well as the leading part which the Bailey Meter Company plays in this field has necessitated its moving into larger quarters for the third time since 1916 to keep pace with the demand for Bailey Products.

The business this company has enjoyed for the past eleven years is ample proof of the high quality of its products and the efficient service which it has rendered—and will continue to render.

Bailey Sales-Service Engineers, Mechanical Engineers who have received a thorough training in fluid measurement, the principles of combustion and boiler control, are stationed in the branch offices of the company which are located in all the larger cities. These direct factory representatives are at your service to assist in solving your metering problems and to assist you in obtaining the best possible results from your metering equipment.

BAILEY METER CO.

1056 IVANHOE RD. CLEVELAND, OHIO.

Bailey Meter Company Limited, Montreal, Quebec.

heavily capitalized and powerful paper mills. Some operations in the generation and distribution of power in the small mill plant, on the other hand, may be marked with an outstanding degree of efficiency and economy. The large mill can learn economies from the small mill and the small mill can frequently adapt practices of the large mill to its decided advantage.

All Classes of Mills Stand to Gain

By treating with equipment units of individual type or class, the use of which in paper mills somewhere has been instrumental in reducing expenses of some kind, many mills are benefitted—large and small, rich and poor, modern and old fashioned. All classes of paper mills stand to gain much from the fortnightly discussions in the Power Plant Section.

A power equipment unit may be discussed which has already been adopted as a standardized essential by the majority of paper mills and still real helpful service is rendered. The larger number of paper mills may learn relatively little, but there is always a large minority still operating under conditions similar to or even less advantageous than those which pertained in the paper mills supplying the cost statistics featured before they invested in the unit in question, and these may be very decidedly benefitted. This is one extreme. The other is when the power plant equipment unit discussed has been employed in only a relatively few paper mills. In such cases, the majority of paper mills may stand to realize important improvement in their established practices and save substantial expense by adopting the new methods which have demonstrated their worth in the mills providing the data presented. Then, there is always that stimulating incentive to better standards set up in other mills to be gained by those mills not too proud to learn from the presentation of authentic cost statistics.

So very much good can result from regular discussions of the unit treatment in power cost reduction that it seems almost incredible that any paper mill user or any manufacturer of power plant equipment should hesitate for a moment to furnish any pertinent information which he may possess. For selfish motives, it is conceivable that a mill might not particularly care to help another mill, especially one with which it is brought into direct competition, but for the very same selfish motives it surely is anxious to acquire any information which may serve to lighten its own power cost burden and indirectly reduce its production costs. Viewed in this essentially selfish light, the question of participation in the discussions on the part of individual mills, by supplying pertinent information, may depend upon whether the mill feels it will gain more than it gives.

Will Gain More Than Is Given

If such question is confronting any mill, it can be unqualifiedly asserted that every mill which will cooperate by supplying such essential information regarding its experience with any particular power plant equipment unit will gain more than it gives. It is a very mistaken idea to imagine that a mill can harm another by following its methods in the generation and transmission of power. It simply could not be done.

Each mill has its own quite substantial investment in a power plant, which it would be the height of folly to sacrifice in order to reconstruct it along the identical lines of another power plant credited with somewhat more economical operation, particularly as there could be no assurance that the remodeled plant would prove as economical to run as the plant after which it was patterned. True, and not very strange at that, the originator and the imitator never secure identical results, even though the plants they respectively operate are as alike as two peas. Altogether far too many different factors have to be taken into consideration to permit of such agreement.

Aim Is to Improve Existing Installations

When it comes to the individual units which constitute the power plant equipment, however, conditions are somewhat different. A relatively small capital investment is entailed in the first place, should some change no matter how radical, be decided upon, thus minimizing the always dreaded monetary risk. Second, the aim is not to duplicate an installation, but to improve an existing one by incorporating some one modification of proven worth under conditions of similar, if not identical, characteristics. Equal economies may not be attainable, but if one mill has succeeded in performing some one of the many involved steps in the generation and transmission of power at a 9 cent rate where formerly 10 cents had been required, the fact is a very general interest. Furthermore, the attainment of the 9 cent record may almost as well have been realized in the small as in the large mill. Be that as it may, it is very certain that not more than a few other mills have attained exactly the 9 cent rate. Some may have bettered the record, it is true, but many others unquestionably are expending considerably more for this one particular step. The progressive paper mill, large or small, is continually on the lookout for attainable economics of just this nature. The reduction of an expense from 10 cents to 9 is just as important to the mill conducting a business running well up into the millions each year as it is to the mill whose receipts total to not many more thousands.

In the investigations covered by the nine discussions on particular power plant equipment units which have appeared to date, furthermore, gains due to the substitution of modern, approved equipment units for less satisfactory devices in use have far exceeded any such 10 to 9 reduction, for the most part. Savings which have liquidated the investment entailed in very short order have been the rule. Net annual yields on the investment incurred of from 15 up to several hundred per cent. have been effected, time after time. Savings of this substantial order have been effected, after time. Savings of this substantial order have been made by the mills with the courage to make the change. To one mill which has done so, there are doubtless many which have not as yet, even though the change in question may be one which is unnecessary in the modern mill with more strictly up-to-date equipment.

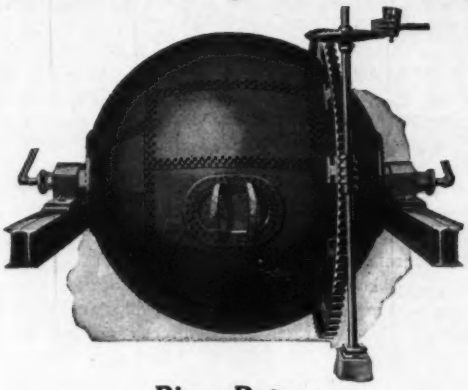
Facts Regarding Movements of Promise

This is one service the Power Plant Section strives to discharge. Another, is in the presentation of facts regarding movements of promise in the power generation and distribution field of the industry. For example, a recent discussion on steam turbines clearly brought out a question of some doubt on the part of paper mills as to whether the large amount of process steam customarily required is secured most economically by operating steam turbine prime movers against considerable back pressure, or by deriving at least some of the process steam through the process of bleeding turbines at various pressure stages utilizing the incidental drop in steam pressure to discharge some useful work, and operating the turbines condensingly. Here is a real engineering problem, or question, which will be followed up by the presentation of further cost figures regarding both systems of operation, with the view of providing the paper industry with evidence, pro and con, as to which method really costs less, derived from actual experience within the industry. Such continuance of the discussion should prove of substantial benefit to all concerned, for those mills now experimenting with turbine bleeding certainly do not want to continue such practice if greater economies can be secured through high pressure exhaust operation and vice-versa. The great majority of mills as yet not effected directly by these sought for refinements should also be keenly interested in acquiring first hand paper mill knowledge concerning the respective practices.

Presenting Cost Statistics

In these ways, by presenting cost statistics regarding the value of individual power plant equipment units in paper mill service and by presenting unbiased evidence on both sides of the economic value of established procedures and innovations in the industry, the Power Plant Section can be and, with the cooperative assistance of power plant equipment manufacturers and of the mill users of such equipment. will be developed into a clearing house

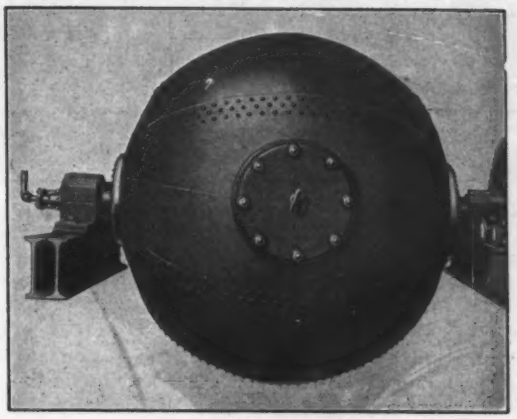
Biggs Standard Paper Mill Equipment Covers Every Bleaching and Cooking Requirement



Biggs Rotary Bleaching Boiler

Biggs Globe or Cylinder Bleaching Boilers are unexcelled for bleaching all grades of stock. They are built in any size desired and for all necessary pressures.

Equipped on specification with special baffles, strainers, agitators and various types of drive, including combination worm and spur gear drives, worm reduction running on oil baths, etc.



Biggs Improved Cold Bleaching Engine

Biggs Rotary Cold Bleaching Engines successfully handle paper making pulp up to 35% consistency with a remarkable saving in time, labor and expense.

The combination of pressure bleaching with the patented Biggs agitating feature bleaches 4-ton batches of from 15 to 20% consistency in one hour, whiter, cleaner and stronger than any other method.

Biggs Digester

Biggs Digesters are substantially constructed, easy to operate and designed for perfect agitation.

For severe service each rivet head and all seams are electrically welded. The cylinder is suspended vertically, properly counter balanced and equipped with cast steel journals and gear drive.

Paper mill equipment "Built by Biggs" is the best assurance you can have of long, trouble-free service. 40 years' experience in fulfilling the requirements of the paper industry, plus extensive manufacturing facilities, have made Biggs Rotary Bleaching Boilers, Engines and Digesters the accepted choice of practical paper men everywhere.

The Biggs Boiler Works Company

General Offices and Works: Akron, Ohio

Eastern Sales Office: 300 Madison Ave., New York City

Chicago Office: 35 South Dearborn St.

BOILER WORKS The Biggs Co. EST 1884 AKRON OHIO

Trade Mark Registered

GLOBE and CYLINDER

ROTARY BLEACHING BOILERS

for Years of Dependable Cooking and Bleaching

for information of real value to the paper making industry. In the announcement of the section in June, the statement was made that a very substantial proportion of the great strides made in paper production during the past few years is attributable to the equipment (power plant units) sold to the paper industry by other industries. For the industry to make even greater strides at the present time, it is now essential that it familiarize itself with the real costs of operating this equipment. The Power Plant Section aims to do this.

The manufacturers of power plant equipment which has given satisfaction in paper mill service, which has been approved in the exacting school of everyday usage, are naturally anxious to draw attention to their successful installations. There is no more effective manner of doing this, so far as the paper industry is concerned, than in the pages of the Power Plant Section, space in which could not be bought at any price. The same guarantee of fair treatment and of giving credit where credit is due extends to the paper mills using the equipment, to those who should benefit most from the discussions and whose cooperative assistance in the discussions is again besought.

Support for a clearing house of the nature of the section is very appropriately solicited in this issue of the PAPER TRADE JOURNAL. In it is recorded much pertinent information of keen interest and value to the industry. It is the result of cooperative support of the periodical by the paper mills, of the kind of support which, if accorded the Power Plant Section, will make that department an outstanding achievement in trade paper journalism, of distinct value to the industry, meeting with the respect of equipment manufacturers and looked up to as a dependable guide in paper mill power plant practice.

Information That Will Be Called For

From time to time, the paper mills may expect to be called upon for information regarding their experience with specific power plant equipment units. The information invariably desired can be grouped under four simple headings:

Specifications of unit in question,
Investment entailed (approximate),
Major improvements realized,
Estimated annual savings effected.

In the past, such information has been hard to get, owing to reputed absence of any such records. Such lack appears inconceivable, for there must be statistics of this character tucked away somewhere which can be made available. Specifications sufficient to identify the unit in question only is required. As for the investment surely there must be a record of bills paid which could be drawn upon to clarify this point. If the purchase was made, it was unquestionably made to realize certain improvements and it is past understanding that there should be no record of whether these improvements or others were realized. If improvements were effected, they surely have some value which can be expressed in savings realized during the year.

The discussions contain so much pertinent information to many mills, or should, that it is sincerely hoped that in the future the mills approached will endeavor to unearth the information desired. If they will do so, attention will be focused, nine times out of ten, upon a situation which offers an opportunity for the mill to reduce its own power costs.

The industry is big enough today to know its own problems, to know its costs and to appreciate the value of a neutral clearing house for information pertaining to the operation of its power plants. The Power Plant Section aims to promote the most efficient and economical distribution of power about the paper mill an aim which calls for the cooperative assistance of all paper mill power plants.

Know your costs and do not object to your competitor knowing them also. Your keenest competitor very likely knows them already and quite possible more accurately than you do.

New Thunder Bay Mill

(*Continued from page 78*)

volt power will be stepped down at the mill to 4,000 volts for use in the grinder motors and 550 volts for use in the smaller motors.

The power for operating the paper machine, its auxiliaries and the screen room will be furnished by a double extraction steam turbine, and the power so developed will really be produced as a by-product in reducing the steam from boiler pressure to a pressure of 125 pounds for use in the sulphite mill and 25 pounds for use in the paper machine and for heating. The power so produced will not only be low in cost but will also insure the continuous operation of the paper machine at all times.

Will Use No Belt Drives

Another interesting feature of the mill is the use of directly connected motors and the absence of belt drives. 1,500 horse power synchronous motors are each connected to two four-pocket grinders. 100 horse power synchronous motors are mounted directly on the shafts of the No. 8 Nash pumps, and 40 horse power synchronous motors are mounted directly on the shafts of the No. 6 Nash pumps.

All centrifugal pumps are driven by means of directly connected induction motors. The paper machine proper is driven by directly connected sectional drive, direct current motors. The sulphite primary screens, the sulphite tailing screens and the ground wood primary screens are all driven by means of directly connected motors. The ground wood deckers, the Connerville blower pump and the broke beater are driven by means of silent chains.

The Beadle mixers, the stock chest agitators, the bull screen, sulphite deckers, ground wood knotters and tailers, and bark distributor are all driven by means of DeLaval worm-reducing gears. Pulleys were only used where it was found that they produced a distinct function, such as taking up the shock in the chippers, barking drums and flat tailing screens, and for driving wood conveyors where the belt performs a safety duty in slipping off the pulleys whenever the conveyors plug.

An Important Institution

In conclusion, the new Thunder Bay Mill is an institution which stands proudly as an important member of the big Consolidated organization. Through its career of twenty-five successful years the Consolidated Water Power and Paper Company has held high ideals of accomplishment. "Do all things well" has been the governing thought in every new project and Thunder Bay has adhered devotedly to that principle.

Two Kalamazoo Mills To Issue Bonds

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., October 24, 1927.—Two Kalamazoo Valley paper mill companies are completing plans for additional financing through bond issues. The Bryant Paper Company is to issue $1,000,000 and the Michigan Paper Company, of Plainwell and Kalamazoo, $300,000.

The Union Trust Company of Chicago acts as fiscal agent for the Bryant issue, which will carry six per cent interest. Local banks are co-operating in the sales and rapid disbursement is certain. The Bryant Paper Company is continuing its policy of making extensive improvements in every department of the great plant, bringing both buildings and equipment up to the highest state of efficiency.

Michigan Paper Company bonds have not been issued as yet, nor are all the details worked out. It is understood they are to be six per cent bonds. Of an authorized issue of $500,000, there will be $300,000 sold at this time. The Michigan Paper Company during the past year has added to its facilities by the purchase of the plant of the defunct Bradford Paper Company. That gives it one of the best coating mills in the valley. It is also understood that quite extensive improvements are contemplated at the Plainwell division, though their exact nature is as yet unannounced.

ALLIGATOR

TRADE MARK REG. U.S. PAT. OFFICE

STEEL BELT LACING

The Salt of Belting

THE extremely long life of Alligator Steel Belt Lacing and the quick, simple application have made it the most generally used belt lacing in the world.

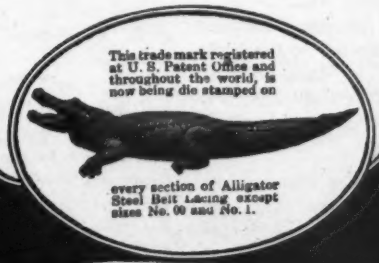
An important item, Alligator Steel Belt Lacing! Small in cost, but like salt in food, it seasons the service. Most belt troubles start at the joint. But with Alligator the teeth clinch through the belt end, compressing it in a vise-like grip of steel. This powerful grip forestalls trouble and makes it "the strongest belt lacing on earth."

In the sectional steel rocker hinge pin (patented) the oval faces rock on each other taking up the wear. The two sections are held in position by lugs that engage the loops. Nearly every supply house, belting house and hardware store has a selection of the eleven sizes to fit your belts. Standardize on Alligator Steel Belt Lacing for satisfaction in service.

Flexible Steel Lacing Co.

4689 Lexington St. Chicago, U. S. A.

In England at 135 Finsbury Pavement, London, E. C. 2


This trade mark registered at U. S. Patent Office and throughout the world, is now being die stamped on
every section of Alligator Steel Belt Lacing except sizes No. 00 and No. 1.

British Columbia Paper Mills Overtake Demand

News Print Plants Which Have Been Fully Employed May Find It Necessary to Curtail Production—Actual Output of Canadian Mills During Last Nine Months Far Exceeds Production in Corresponding Period Last Year.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 24, 1927.—There has been quite a revival of interest on the Montreal Stock Exchange in the shares of pulp and paper companies, and sharp advances have been registered in the shares of leading companies. The situation is a puzzle to experienced traders, who openly declare that with many mills operating at around 80 per cent capacity, much difficulty will be found in paying dividends. During the past week the news has come from British Columbia that the news print mills there, which have been fully employed, have now overtaken the demand and a curtailment of production may be necessary. The immediate outlook in the industry generally is certainly not one to promote bullish enthusiasm. Taken as a whole, the news print mills are operating at about 84 per cent of capacity, and more mills are coming into production all the time. On the other hand, an encouraging feature is that the actual output of Canadian mills was 138,573 tons more in the elapsed nine months of the present year than in the corresponding period of last year, so that in time the situation is expected to right itself.

Paugan Falls Development

The Hon. Honore Mercier, Minister of Crown Lands for the Province of Quebec, has just returned from a visit to the Paugan Falls power development, which is being carried out by the International Paper Company's subsidiary, the Gatineau Power Company.

The site showed an entire village of 1,700 persons complete with modern drainage, electric lighting, running water, and so forth.

The dam itself has a maximum height of 180 feet and will be in operation by June, 1928. Work was begun just about a year ago to harness the upper waters of the river and augment the power output already being drawn from the dams at Chelsea and Farmerspoint, which the party visited.

The plans now are for 4 penstocks serving eight units of 34,000 horsepower each. Six of these will be installed at once and with the already existing development and other work planned near Maniwaki the output of the river will be brought up to some 685,000 h.p., of which the Paugan Falls dam will be responsible for 270,000. An idea of the magnitude of the undertaking may be gathered from the fact that the Paugan dam will back the river up for 30 miles, involving 11 square miles in its area.

From the top of the dam as far as the eye can reach, the timber up to a given height has been shorn from the hillsides in preparation for the final act, which will convert what are now high hills into little islands and change a fast flowing river into a large lake. This will be the second largest storage on the Gatineau system, the largest being behind the Mercier dam, which is located near Baskatong Lake and houses 955,000,000,000 cubic feet of water.

Paper Companies to Benefit

It is expected that the pulp and paper companies whose plants are situated in Northern Ontario, and whose power rights are much greater than their requirements, will benefit from the fact that the Ontario Hydro-Electric Commission is now turning to Northern Ontario for additional sources of supply. The acute shortage of power that was threatened will be met for a time by purchases of power from the Gatineau Power Company, but demands are growing so fast that the Commission must make arrangements for further sources of supply. In this connection it is stated that there is a possibility that the Carillon Falls, situated on the Ottawa River above Montreal, will be developed by the International Paper Company under an arrangement by which a large block of the power will be sold to the Commission. It is calculated that whereas horse-power developed in Ontario is 1,445,480 h.p., the available horse-power is 6,808,190 h.p., the bulk of which is located 500 miles or more north of Toronto.

Murray Bay Company's Financing

During the week an offering of $2,000,000 Murray Bay Paper Company, Limited, 6½ per cent first mortgage 20-year sinking fund gold bonds has been made in Canada and the United States.

Murray Bay Paper Company will be controlled through common stock ownership by a group comprising Abitibi Power and Paper Company, Spanish River Pulp and Paper Mills, the Mead Investment Company, Dayton, Ohio, and other interests prominent in the Canadian news print industry. The company is now constructing a paper mill with a rated capacity of 120 tons per day of finished news print paper, about six miles from the port of Murray Bay, approximately 90 miles below the city of Quebec. It is expected that the mill will be in complete operation early in the spring of 1928.

The company has acquired, under contracts on favorable terms, wood-cutting rights on Crown limits; lease of a going, modern, groundwood pulp mill, having its own hydraulic development with an installed capacity of 8,450 h.p.; a contract for electrical power with subsidiary of Shawinigan Water and Power Company, and a contract for sulphite pulp with Ste. Anne Paper Company, Ltd., which company is controlled by the same interests.

The production of the company's mills will be marketed under contract of sale with the Canadian Newsprint Company, Limited, which is the largest distributor of news print in the world.

The chairman of the company's board is George H. Mead, president of Spanish River Pulp and Paper Mills. Other directors will include J. T. Donohue, president, who has had a long experience in the manufacture of pulp in this particular part of Quebec; W. N. Hurlbut, president of the Manitoba Paper Company, Ltd.; Alexander Smith, president of the Abitibi Power and Paper Company, Ltd.; Charles Donohue, a director of Ste. Anne Paper Company, Ltd., and John D. Coffin and W. H. Howard, respectively vice-president and secretary of that company.

New Brunswick Latent Forest Resources

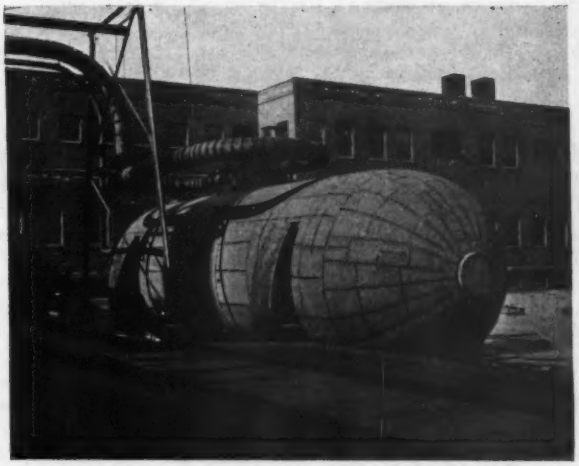
Professor Webb, of the Forestry School of the University of New Brunswick, in a statement at a convention of municipalities of the Province, said that the Province has standing 45,000,000 cords of pulpwood, and that the annual growth would offset the annual cut.

He also said that there are in the province today 356 sawmills and that more pulp mills could be supported. Last year 200,000 cords of pulpwood were exported from New Brunswick, most of which went to the United States, while as regards laths, New Brunswick's production in the last few years was one-third the total for Canada.

A growing increment of 2½ per cent, he stated, would offset the total cut for 1926. Today there are $50,000,000 invested in forest industries in New Brunswick; there are four pulp and one paper mill, although developments in that line have been retarded by lack of power development.

Through the school of forestry at the University of New Brunswick, he stated, New Brunswick today possesses more detailed information on her forests than any other province.

Let The Ruths Steam Accumulator Make Your Boiler House a "Base Load Station"



Higher Industrial Efficiencies —Increased Profits— By Using a Ruths Accumulator to Protect the Boiler House from Peak or Shock Loads

Why are boiler room efficiencies uniformly so much lower in industrial plants than in public utilities?

Some of the difference, to be sure, lies in the fact that public utility plants are usually larger and so justify greater outlay for equipment and supervision.

But that's only a small part of the answer.

The big outstanding reason, in all industrial plants with a fluctuating steam load, is that as fast as they "get set" for one load, the steam demand jumps or drops to some new figure.

The Ruths Accumulator stops that, definitely and automatically. It takes care of the variations, leaving the boiler house operating under a steady uniform load.

Give the Boiler House a Chance to Make a Showing!

Ruths Accumulator Company Inc., 292 MADISON AVENUE, NEW YORK CITY

Canadian Representatives: Combustion Engineering Corp., Ltd., Montreal, Quebec.

Paper Demand Recedes Slightly in Philadelphia

Industry Affected by Waiting Attitude of Business Generally—Influenced by Uncertain Outlook, Many Manufacturers Are Reported to be Curtailing Production—Coarse Paper Specialties and Kraft Wrappings Continue Active

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 24, 1927.—Inclement weather and an attitude of waiting on the part of business generally brought about a slight recession in the local paper market. During the past week several of the larger paper merchants were offering attractive bargains in stocks already on hand in order to clear out their warehouses. Apart from these concessions in values there are no disturbing price reductions, the mills continuing to hold to their quotations of the last six months.

Coarse Paper Market

The coarse paper market continues active only in specialized lines that are most needed for the holidays. Krafts are among the active grades, while glassines, waxed specialties, holly designed wrappings, container boards, and news and chip boards, are moving in fairly well maintained volume. Many manufacturing enterprises are now curtailing production, having produced sufficient merchandise to take care of immediate needs and because of business uncertainty are not looking forward to greater activity in their plants at this time. All these precautions against the uncertain business outlook have been reflected in the paper market and govern the quieter trend of the past week.

Swollen Waters Leave No Effect on Mills

While there was much ado about the swollen waters of the Schuylkill River in the local dailies, the paper manufacturers in the Philadelphia district abounding that stream were not subjected to the damages reported up state. All paper mills along the Schuylkill, in the Manayunk section, continued to operate. A few of these manufacturers are sold ahead for holiday requirements and although high waters may prevail, are so equipped with electrical power that no interference with production is anticipated.

McDowell Mills Active

Among the paper mills in the Manayunk district that were kept at full speed during the reported "flood" were those of the McDowell Paper Company, now sold several weeks ahead on glassines and Christmas specialties in wrapping papers. The McDowell mills notified patrons that there was no let up in production and no damage to its mills from the high waters, so that all holiday orders will be handled with despatch.

General Manager Engle Feted

Charles McDowell, head of the century old mills that have been continuously in the family for three generations, gave a dinner for General Manager H. Wilson Engle, at the Bellevue Stratford Hotel last week, in commemoration of the 30th anniversary of his association with the McDowell mills. General Manager Engle joined the McDowell company as bookkeeper and rose through various steps in the management to the present executive position. He is affiliated with the leading business, civic and social organizations of the Manayunk section of Philadelphia.

Wholesale Waste Merchants Banquet

Combining a social and business session, the Philadelphia Wholesale Waste Merchants Association gathered at the banquet table in the Hotel Lorraine, last Thursday evening. Thomas A. Kenny presided and gave a review of business conditions. Secretary William J. McGarity reported on organization activities and stated that the Liberty Bonds in which the association had invested during the World War were called for redemption in November. Upon the suggestion of President Kenny, the funds to be received from the Liberty Bonds are to be set aside for a banquet and theater party to be held this winter. A committee was appointed to arrange for the event, with George French, of Castle and Overton, and Harry Bailey, of the Hemmingway Company, selected to serve.

A. W. P. Co. Dealers Dine

As guests of the American Writing Paper Company, Philadelphia distributors of Eagle A Papers will be entertained by the local manager, Fred Hastings, at the Bourse Restaurant Friday evening to a dinner and sales talk. There are three Quaker City distributors of the Eagle A Papers, the Garrett-Buchanan Company, Riegel Paper Company, Inc., and the Richie-Howarth Company, all to be represented by officers of their respective firms. During the dinner, a talk on economy through standardization will be given by Robert Fay, of New York, who is giving similar educational discussions on standardization in the larger cities of the country. Other features of his talk will be the selection of "right papers for right purposes" and the factors of economy in standardization.

Paper Trade Association Annual Election

In order to conform to the dates for the annual meeting of the National Paper Trade Association, the annual meeting of the Quaker City organization has been changed to the last Friday in January. Vice President T. H. B. Smythe, of the Philadelphia Association, and of the J. L. N. Smythe Company, will represent the Wrapping Paper Division at the National Convention in Chicago this week, taking the place of the elected delegate, Charles A. Wilder, who is unable to attend. A. Richard Hartung is the delegate from the Fine Paper Division.

Andrew Simon to Be Honored

Commemorating the 37th anniversary of his affiliation with the Charles Beck Paper Company, Vice President Andrew Simon will this week be given a testimonial by his associates. He joined the firm founded by his uncle, Charles Beck, as a worker in the shipping department and after learning packing and other details of that branch of the business was transferred to the sales organization, rising to the position of general sales manager. Ten years ago he was elected vice president. He will be entertained by the firm at a dinner this week.

Wedding Bells for Clyde B. Cobaugh

With his partner, Howard Satterthewaite, as best man, Clyde H. Cobaugh, of the Satterthewaite Cobaugh Company, tuned in to the chime of wedding bells last Wednesday. The wedding took place at the home of the Rev. T. W. McKinney, in the presence of a few friends and relatives. The bride was the former Miss Gertrude Barmes.

John H. Sinex in Hospital

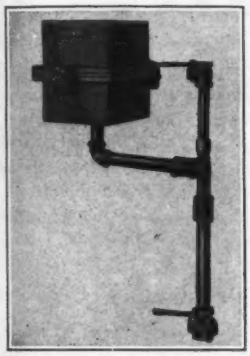
President John H. Sinex, of the Garrett-Buchanan Company, who has been in poor health for the past six months, was removed from his summer home in Maine to the University of Pennsylvania Hospital last week.

Harvey L. Platt Heads Windsor Locks Mills

Following the reorganization of the Windsor Locks Mills, the control of the paper manufacturing concern passes to Harvey L. Platt, of the J. L. N. Smythe Company, and to Ernest R. Adams, a consulting chemist of Arthur D. Little, Inc., Cambridge, Mass. Mr. Platt, who is treasurer of the Smythe Company, is head of the Windsor Locks Mills, Inc., while Mr. Adams is its treasurer. The reorganized business will be known as the Windsor Locks Mills, Inc., and will be engaged in the manufacture of sulphite papers at Windsor Locks, Conn.

When You Must Know *Exactly*

Appleton Laboratory Equipment Can Help You

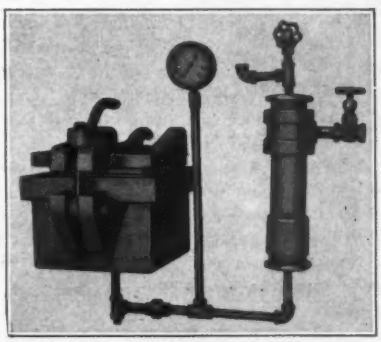


Sheet Machine

Appleton Laboratory Equipment

The sheet of paper, 6 by 6 inches, after it comes out of the Hot Plate, is a test sheet made under positive conditions, and is a perfect laboratory specimen of the finished paper that your machine will make in your mill.

WHEN some question arises in your process of paper manufacturing you can soon find the answer with Appleton Laboratory Equipment. If you want to know the properties of the pulps you buy or the rate at which pulp strength will develop under certain beat-conditions—if you must match colors perfectly, or test for sizing—if you want to develop new papers in a practical way or test for trouble at any point in the whole of your process of paper manufacturing—Appleton Laboratory Equipment can help you.



Hydraulic Press

The Three Steps of the Process

1 SHEET MACHINE—with a positive suction and an easily changed wire actually reproduces paper machine conditions.

2 HYDRAULIC PRESS—gives the precise pressure desired and will hold it for any length of time.

3 HOT PLATE—its action corresponds exactly to the action of the drier rolls on the paper making machine.

Hot Plate

Descriptive folder sent on request

THE APPLETON MACHINE COMPANY

Appleton, Wisconsin

October Paper Demand Improves in Toronto

October Proves a Decidedly Better Month Than the Preceding One—Canadian Paper Trade Association Informs Toronto Typothetae That It Will Correct Irregularities in Present System of Pricing Paper If Any Irregularities Are Found

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 24, 1927.—Business in the paper line is very good at present and October has proved to be a better month so far than the preceding one when trade was very spotty. There has been a gradual recovery in all business and the paper houses are feeling the benefit, both directly and indirectly. Book and writing mills are kept busy and just now there is quite a rush in turning out catalogue papers. Coated paper plants, which were rather quiet last month, report there has been a change and the outlook is now good.

Toilet and tissue mills are well employed and specialty plants have no cause for complaint. Manufacturing stationers are busier than they were last year at this period and envelope factories are receiving some nice orders. Board mills are operating to capacity while deliveries in some instances are behind.

Paper Box Factories Rushed

Paper box factories are rushed and the prospects for the fall season are exceptionally bright. Most of the plants say they needed the present boom in orders to recoup them for losses during the recent quiet spell. Some concerns are working over time. Paper box consuming industries are also active and are using a big supply of cartons while there has been an excellent demand for papeteries and small specialty lines for the coming holiday trade. Additional tonnages of board will come on the market when the two new board plants to be erected in Toronto are completed, and work on their erection has started. The buildings are those of the Canadian Paperboard Company and the Dominion Envelope and Carton Company. The new board plants have not as yet affected the general prices for board, which is a source of much satisfaction to present manufacturers.

Makers of the high grade writing, book and bond papers are apparently enjoying substantial prosperity.

More Scientific Price List

A letter was recently sent to the Toronto Typothetae from the Canadian Paper Trade Association to the effect that the central section of that body has received a report from the committee which met the representatives of the Typothetae with a desire to adjust speedily any inequalities in the present system of pricing paper if any such inequalities now exist. The letter says in part: "It was felt that the first essential to an adjustment of any such inequalities as may exist, is a more thorough knowledge of comparative costs, than is at present available, as applied to the varying volume of individual orders. It was the view of the meeting, therefore, to appoint a Committee from this Association to make a thorough and systematic survey, collecting the necessary data, and to report back to our Association their suggestions for adjustments in order that any changes recommended might be in conformity with sound business principles.

"This Association desires to assure the members of the Sixteenth District most emphatically that the decision to make this survey is not for the purpose of postponing any action with respect to the request made by the Sixteenth District, but is, on the contrary, actuated by a sincere desire to have any changes, when they are made effective, based upon the soundest principles.

"The Committee referred to will proceed with all diligence to make this survey, and the result will be communicated to your organization at the earliest possible moment, and certainly not later than December 1, 1927.

"It is hoped that, from the information developed by this survey, means may be devised which, when put into operation, will reduce the overhead expenses of the merchant in the conduct of his business as a distributor of paper supplies to the printing and lithographing trades."

Presentation Made to Mr. Stark

L. R. Stark, master mechanic of the Kenora Pulp & Paper Mills, Kenora, Ont., was the guest of honor recently at a banquet in Kenora, when the entire mechanical staff gathered to do honor to their chief, who is severing his connection with the company to assume similar duties with the Spruce Falls Pulp and Paper Company, Kapuskasing, Ont. Members of the mechanical staff, who had been with Mr. Stark since the first machine started to run in the Kenora mill four years ago, eulogized his work. W. Curran made the presentation of a gold watch during the evening as a token of appreciation of the staff.

Notes and Jottings of the Industry

The new board mill of Hinde and Dauch Paper Company, Trenton, Ont., which has been operating for the past few months, has put on a second shift and is now running the full twenty-four hours turning out forty to fifty tons daily of strawboard.

W. P. Bennett, who is a former president of the Canadian Paper Box Manufacturers Association and some months ago disposed of his interests in the Rudd Paper Box Compnay, Toronto, has become a direct mill representative and opened an office at 21 King street east. He will handle box board and paper, all grades, paper box manufacturers' supplies, etc.

Fred W. Halls, of the Fred W. Halls Paper Company, Toronto, spent the past few days in North Bay and district and reports business in the paper line in Northern Ontario as being very good this fall.

H. B. Donovan, sales manager of the Canada Paper Company, spent the past few days in Montreal on business, having recovered completely from his recent illness.

George Winlow, Toronto sales manager of the Lincoln Pulp and Paper Mills, was lately in Quebec, Montreal and other points east and says the outlook for increased business is improving all the time.

Gordon Blanchard, of the Chemical Paper Manufacturing Company, Holyoke, Mass., was in Toronto recently calling upon the trade.

S. W. C. Palmer, who has been connected with one of the big accounting firms in Toronto, has joined the staff of the Rudd Paper Box Company, Toronto, as chief accountant and cost clerk.

A new roof has been put on the machine room of the Thorold division of the Provincial Paper Mills while an addition to the finishing room has also been completed. It is 60 x 60 feet, three stories high, and erected of brick, concrete and steel. W. J. Trimble, of Toronto, was the contractor.

R. J. Hibbard, representing the B. D. Rising Paper Company, Housatonic, Mass., was a caller upon the trade in Toronto during the past few days.

W. S. Hodge and W. H. Sheriff, of the Hodge-Sheriff Paper Company, are on an extended business trip to points west and will visit the Pacific Coast.

Dr. S. N. Kapur, timber seasoning officer of the Forest Products Institute, Dahra Dun, India, spent a day or two in Toronto lately on business.

To the man who has built a business

THE modern executive is the man with a clean desk. He knows how to rid himself of details ··· how to surround himself with men capable of handling their jobs.

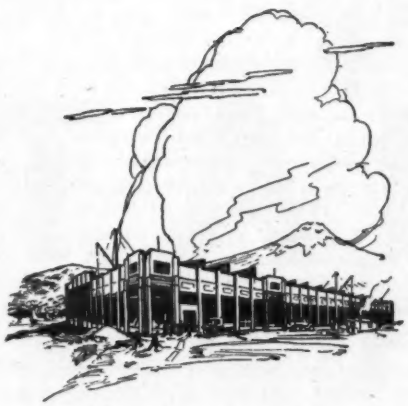
He is the man who originates action ··· then delegates the responsibility to others.

He has helped to develop The H. K. Ferguson Company into a great engineering and building organization of international scope. He is no longer willing to occupy his time with building details. He refuses to waste days, weeks, or months of his valuable time supervising architects and contractors, when he can delegate the whole job to a single responsible organization.

Scores of big business men call Ferguson as soon as they find themselves facing a building problem. Ferguson does their work from the start—with plans, estimates, engineering—the building itself—all covered by a written, binding guarantee that includes the delivery date, total cost, and the owners complete satisfaction in the finished structure.

Ferguson has designed and built hundreds of buildings for great industrial concerns such as General Electric, Proctor & Gamble, A. P. W. Paper Co. and National Cash Register Co.

You will not have done justice to your building job if you have not learned the Ferguson way—the modern way—before you start your plans. Write or telephone.



Ferguson recently has started another great industrial project in Yokohama, Japan, for an American manufacturer.

The first intimation Ferguson had that such a project was being considered was a long distance call from an official of the American Company. The following day a Ferguson executive was in conference with him. Twenty-four hours later rough plans and estimates were completed and submitted. Finished plans and exact estimates followed shortly. Actual work has already begun.

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Ferguson
ENGINEERS

Improvements at Menasha Plant Progressing

New Boiler Room Nearly Completed and Addition to Press Room Being Built—New Power Project on Menominee River Inspected By Three Hundred Guests of Northern Directors—Current From White Rapids Supplies Northern Paper Mills

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 22, 1927.—Within a week the Menasha Printing and Carton Company will have completed the removal of its offices from Menasha, Wis., to Chicago. About 75 persons are making a change of residence as a result of this move on the part of the company. This industry recently was acquired by the Marathon Paper Mills Company, of Rothschild, Wis., and since then extensive sales plans have been in contemplation. It is believed that the change of offices will be of considerable convenience, as it brings this end of the business nearer the logical market. Improvements which have been in progress at the Menasha plant are being hurried to completion. A new boiler room, housing two additional boilers, will be ready for use in about two weeks. The company also is building an addition to its press room to take care of increased capacity. The new unit is 40 by 60 feet in size.

Northern Director's Day Celebration

More than 300 persons attended the "directors' day" celebration conducted by the Northern Electric Company, subsidiary of the Northern Paper Mills, Green Bay, Wis., on Wednesday of this week at the new three million dollar power project on the Menominee river. The day was spent in inspection of the twin dams and power stations at Chalk Hills and White Rapids, and in viewing the scenic surroundings created by the impounding of Lakes Rosebush and Miscauno. Twenty directors and their wives arrived at Menominee, Mich., for the celebration aboard a special Pullman coach in which they had travelled into northern Canada for a ten day inspection of the Northern's timber interests there. Others in the "directors' day" party were paper mill and public utility men, electrical engineers and others prominent in the hydro electric field.

In the morning a tour was conducted through the lower power plant and dam at White Rapids and the upper project at Chalk Hills. All were agreed that no more beautiful architecture ever was attempted in power plants, and represents personal study and ideas of Judson G. Rosebush, president of both the paper and power companies. As the result of expert landscape planning, a most excellent summer resort area was created surrounding Lakes Rosebush and Miscauno. On the shore of the former lake is a community called "Northern Balsams," which consists of seven dwellings and a schoolhouse for the accommodation of power plant employees. At noon the guests were entertained at dinner in the large dining hall used by Siems, Helmers and Schaffner Company, contractors, to feed the crew of six hundred men required to build the plants. Short addresses were given. Mr. Rosebush told how it had taken six years to bring the power project to completion. It was necessary to deal with land owners, county and state officials and even with the United States government, before actual building could start.

Plans by Holland, Acerman & Holland

Plans for the development were designed by Holland, Acerman and Holland, engineers, of Chicago. The two power plants are of ornamental brick, colored window glass, tiled ceilings, and walls and floors in attractive color combinations. Each has Allis-Chalmers water wheels and generators with approximately 10,500 horse power for each plant. At Chalk Hills, General Electric switchboards, wheels of the adjustable blade type, and Nagler turbines are used. The White Rapids plant has General Electric generator, S. Morgan Smith turbines, and Francis type runners. Power is generated at 23,000 volts, three phase, 60 cycle, and sent out at 132,000 volts. The current from Chalk Hills is fed to the Milwaukee Electric Railway and Light Company, and that from White Rapids to the Northern Paper Mills. The steam turbine which has served for many years at the Northern mills has been shut down and will be used only in emergencies. A considerable saving is expected to result from the change of power source, especially with respect to coal.

Paper Mill Labor Problems

An interesting phase of paper mill labor problems has been presented by George W. Mead, president of the Consolidated Water Power and Paper Company, and mayor of Wisconsin Rapids, Wis., in an article appearing in the October issue of the American Federationist, official organ of the American Federation of Labor. It is entitled, "A Paper Manufacturer and Union Labor."

Mr. Mead relates his experiences with the Union. He tells how he fought shy of the unions for many years, but in 1919 arranged for a raise in pay for workmen and made a contract with the local union. He called the union men into conference in order to aid him in deciding how much the increase should be. Since that time the mill has made an annual contract with the union, and there have been no strikes or other labor disturbances. The company encourages all workmen to join the union but does not make this compulsory for obtaining employment. A "grievance committee' of the union has a monthly conference with mill officials to take up matters concerning welfare of the workmen.

Fox River Water Supply Improves

Water power flowage conditions on the Fox river, where many paper mills are located, have been better this season than at any time for twenty years, according to T. W. Orbison, veteran power engineer of Appleton, Wis. The supply of water has been more adequate and consistent than is the average condition. Mill owners now have an agreement with riparian owners so that Lake Winnebago will be kept at a level which prevents extensive flooding, and this has eliminated much controversy. Storage in the lake is about twenty billion cubic feet.

Ground Wood Pulp Lost

Loss of 1,100 tons of ground wood pulp and with it the steel barge Ontario was occasioned to the Consolidated Water Power and Paper Company this week. The barge suddenly broke in two from unknown causes, and sank in Lake Superior near Ashland, Wis., in 900 feet of water. Five members of the crew had a narrow escape but were rescued by the company's tug Butterfield, which had the barge in tow. Operation of the Consolidated mills will not be affected, since the company has one more barge in operation, and has ample supplies of pulp wood.

Kimberly Mill Inquest Postponed

Inability of state industrial engineers to testify has caused postponement of the coroner's inquest into the collapse recently of the beater room of the Kimberly-Clark Company's mill at Kimberly, Wis., at which time nine men were killed. The engineers desire to withhold statements as to the possible cause of the wrecking of the mill unit until all the debris has been removed. The company requested the inquest in order to determine what made the building fall after standing solidly for so many years.

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Paper Business Gradually Expands in Chicago

Practically All Grades of Paper Respond to Late Fall Demand — Despite Over Production, Prices Remain at Same Level—Situation Will Probably Clear in Near Future—Paper Houses Exhibit at Direct Mail Show

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 22, 1927.—The stage is all set for what promises to be the largest Fall Meeting yet held by the National Paper Trade Association. By the time this is being read the meeting will be in the discard but right now Chicago paper men are planning on being hosts to one great body of paper men when the event gets under way at the Congress Hotel, Monday morning, the 24th.

Visitors to Chicago will be greeted with optimism as far as general market conditions are concerned. A slow summer and late fall start have faded away now and business is universally picking up. There is an indication of good demand in every line with new uses for paper springing up daily and needs for the old increasing in proportion. Book and cover papers, sulphite bond, sulphate fiber, news, krafts, ledgers and writings and others, are all responding to late fall business. There is just one complaint. That seems to be that there is too much paper being produced today to give any one the opportunity to make a really worth while profit. The topic has been discussed so often that its salient points are known backwards by paper men. Present indications seem to point to the fact that paper prices are as low as they can ever get, if that is any consolation. Despite increased over production prices remain at the same level bespeaking a stagnant condition that tells its own story.

Most of the other commodities that are fairly good indicators of prosperity have experienced an increasing price index while paper alone remains "as is." The condition really seems to prove, according to reports from Chicago paper men, that "upward" will have to be the next step, and, on every side one hears that this step upward will not be overlong delayed because of economic necessity which will force prices upward and production down to where it must be to make for fair profits. Economic laws are not long denied and, if so, it is said that paper prices will be in for drastic rise one of these days.

Attractive Paper Displays at Exposition

Thirty-five of the one hundred and forty exhibitors at the D. M. A. A. at the Stevens Hotel this week were strictly paper houses. Each of the firms represented carried attractive displays of their new lines and illustrative matter showing just how direct mail literature looks on their products. One of the most attractive exhibits was that of the Bradner, Smith Company, known as "Paper Town."

The principal structure of "Paper Town" was the "Paper Town Theater" showing a film with the title of "Some Dummies Are Dumb" or "More Time for Golf." The purpose behind the film was to illustrate Bradner Smith's new book on Custom Made Announcements. Paperweight Postal Charts, offering the first service available for figuring weight of a mailing before the paper stocks are ordered and various pieces assembled for weighing, were given out.

Dwight Brothers Paper Company had an unusual attraction in their booth in the form of a visitors' register loaned to that company through the courtesy of Byron Weston, Dalton, Mass. The register is one used at the Centennial Exposition in Philadelphia in 1876. The names of Ulysses S. Grant and other famous dignitaries are in the register. All of Weston's ledger paper handled by Dwight Brothers, was exhibited.

The S. D. Warren Paper Company featured a fine line of blotting papers for direct mail use. The Chicago Paper Company, the Paper Mills Company, and the Swigart Paper Company exhibited the famous brand of Warren's Standard Printing Papers with beautiful illustrative pieces arranged to catch the eye.

The Kimberly-Clark Company went in strong for the rotogravure process and gave away thousands of booklets illustrating the rotogravure process on their "Rotoplate" used so extensively in the rotogravure sections of American newspapers.

C. R. Greer and W. V. Williams, advertising director and sales director respectively of the Beckett Paper Company, Hamilton, Ohio, were early arrivals. The Beckett booth illustrated Buckeye Cover, Buckeye Text and Beckett Cover, three of the popular lines made by that organization.

The Albemarle Paper Company, Richmond, Va., was represented by John R. Diggs, Franklin Dorset and J. B. Bunuss, manager of the Chicago office. The Albemarle Paper Company offered a prize for the best blotter campaign produced during the year. Their beautiful line of blotting paper was on display.

M. A. Park, sales and advertising manager of the Holyoke Card and Paper Company, Springfield, Mass., had charge of the exhibit of that company. Samples of the well known Holyoke cover lines, including Kroyden and Ranger covers were exhibited.

H. S. Foster, advertising manager, A. M. Collins Mfg. Co., was in charge of that company's booth illustrating their lines of coated book and cover papers, cardboards and fancy box papers including the new Laidtone Coated Book, Translucent and Cover Paper.

A distinctive booth was that of the Paper Makers Advertising Club, of which the following are members: Advertising Paper Mills, Louis DeJonge & Co., Hampshire Paper Company, Holyoke Card and Paper Company, D. of C. Paper Manufacturing Company, Albemarle Paper Manufacturing Company, Knowlton Brothers, Inc., Eastern Manufacturing Company, Beckett Paper Company, Neenah Paper Company, Gilbert Paper Company, Chemical Paper Manufacturing Company, A. M. Collins Manufacturing Company, Hammermill Paper Company, Parsons Paper Company, Crocker-McElwain Company, Hampden Glazed Paper and Card Company, and the Strathmore Paper Company. Lines of each of these firms were attractively exhibited.

Box Business Growing in Western Canada

[FROM OUR REGULAR CORRESPONDENT]

E. Victor Donaldson, president of the Rudd Paper Box Company, Toronto, has returned from a business trip to the Western Coast. He saw many signs of renewed optimism throughout the prairie provinces, engendered to a large extent by the splendid crop this season and remarked that this was having a good effect on business generally in the east. Mr. Donaldson believes that the time is not far distant when the western portion of Canada will be self sustaining as a manufacturing center and eastern paper box manufacturers will not have so large a market in the west for their products. The prairie provinces are generally going in for more manufacturing, and this is observed in the paper box industry, which is developing along local lines. Mr. Donaldson added that the carton industry was likely to be centralized in local plants, which will mean that eastern manufacturers of board containers will not reap the benefit of the western market as they have in the past. There are now flourishing paper box plants in Winnipeg, Calgary, Edmonton and Vancouver. The reason for this is the saving in freight rates and board mills are being launched at several points in the west particularly on the Pacific Coast.

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Boston Paper Market Rules Generally Firm

Fine Paper Business Improves and Quotations Are Well Maintained—Demand for Coarse Paper Somewhat Slower With Prices Unchanged—Box Board Steady But Quieter—Paper Stock Situation Dull But Little Changed

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 24, 1927.—Paper dealers here report the market generally firm. Fine paper is steady and business rather good. Coarse paper is a trifle slower. Prices are unchanged.

In paper stock the situation is rather quiet, although prices have not altered. A sale of 115 tons of No. 1 soft white shavings was made during the week at 2.85, five carloads to be shipped at once, and six more later.

Box board is steady but a bit quieter. The confectionery manufacturers, others who are preparing for the Christmas trade, and also many in the shoe business, particularly those around Brockton, are busy, but it is stated that they are not buying very actively at the moment.

Bagging remains at the same levels. New domestic cuttings are stronger. The price of khaki cuttings has advanced. This commodity is quotable at 4¾ to 5¼ cents, compared with a previous range of 4½ to 5. New canvas has also registered a rise, and is quotable at 8½ to 9½ cents, a half-cent higher than the previous range. Old domestic rags remain the same, except that repacked are quotable at 5.50 to 5.75, compared with 5.00 to 5.25.

Paper Houses Exhibit Lines

Several paper houses displayed their lines at the Second Annual Exposition of Industrial Products held at the Copley-Plaza Hotel, October 18, 19 and 20. Towards 25,000 attended the show, which was extremely successful.

The display of the American Writing Paper Company, of Holyoke, Mass., included all their regular papers and featured printing or direct mail advertising papers, such as Zanzibar Laid, Mardi Gras, American Handcraft, and Farnsworth-Dorrington.

The Bicknell and Fuller Paper Box Company, Boston, made a general display of foiding and set-up boxes, showing a variety used by manufacturers, jobbers and retailers, giving special attention to multi-colored printing on folding boxes.

Crane & Co. and Z. and W. M. Crane & Co. of Dalton, Mass., displayed packages of their paper in flat sheets in sizes suitable for cutting to advantage the sheets and envelopes they supply for the trade.

Eaton, Crane and Pike Company, Pittsfield, Mass., in a joint exhibit with Z. and W. M. Crane and Crane & Co. showed an assortment of boxes representative of the boxed paper line of Crane's papers. On display cards were mounted samples of visiting cards, informal announcement and wedding stationery. The special background piece was a semicircle on which was mounted some of the pastel shades of papers manufactured by the Crane mills.

The booth of Tileston & Hollingsworth Company, of Boston, was equipped with antique furniture and hangings. A Crinoline Girl was in attendance at all times, and at intervals during both day and evening sang old-time songs with melodeon accompaniment. The company showed papers of old-fashioned quality, calling special attention to their Milton Cover papers, Milton Text papers, Milton direct mail pieces, Athena plate, and Flemish book printing papers. This Company has been in continuous operation for more than 125 years.

Hoagne-Sprague Corporation, Lynn, Beverly, and Boston, Mass., displayed wood and paper boxes, and George W. Wheelwright Paper Company, Leominster and Hardwick, Mass., Bristol and book paper.

Maurice Duffy's Long Service

Maurice A. Duffy is in the fiftieth year of association with the Tileston and Hollingsworth Company. According to the October "How," edited by A. V. Howland, of that company, Mr. Duffy, now 64 years young, became associated with the Tileston & Hollingsworth interests in 1877. He worked first in the Fuller Mill, going from there to the Eagle Mill. In 1890 he became chief clerk of all accounting in the mills of that firm. Besides the mills mentioned, the Mattapan Mill, the old Summer Mill, and a plant of Groton, Mass., were also among the interests of the company. Mr. Duffy continued in the same position when the plants were concentrated in Matappan.

Mr. Duffy is the second generation of paper-makers of Tileston and Hollingsworth, his father having worked in the old Gillespie Mill for nearly as many years as the present Mr. Duffy has been with the company.

He has kept pace with the remarkable changes in the affairs of the concern during his half-century of service, in which it has maintained its position among New England paper-makers.

Mr. Duffy has been selectman and chairman of the board of selectmen of Milton, Mass., for many years, and is now serving his fourth term as town treasurer.

H. J. Davis Visits Boston

H. J. Davis, treasurer of the Davis Paper Company, West Hopkinton, Mass., was in town last week.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 26, 1927.—The Government Printing Office has received the following bids for 1,000 pounds of 20x26—200, heavy weight executive cover paper: R. P. Andrews Paper Company, at 25.25 cents per pound less 2 per cent; Stanford Paper Company, 35.5 cents; American Writing Paper Company, 16.5 cents; and Lindemeyr & Harker, 20 cents.

The Printing Office will receive bids on October 28 for 1,110 pounds (2,500 sheets) of 40x60 rope manila paper.

The Government Printing Office has received the following bids for 45,010 pounds of three sizes of high finish sulphite manila tag board; Whitaker Paper Company, at 7.9 per cent and 6.47 cents per pound; Barton, Duer & Koch Company, 6.4 cents; R. P. Andrews Paper Company, 7.58 cents; Reese & Reese, 7.625 and 7.69 cents; Port Huron Sulphite & Paper Company, 6.96 cents less 2 per cent; Thomas Barrett & Son, 6.84 cents.

Paper Conditions in Germany Improved

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 24, 1927.—Notwithstanding the threat of growing competition and declining prices, leading paper manufacturers in Germany emphasize better business conditions than last year. At a general meeting of the Zellstofffabrik Waldhof at Mannheim on September 24, stockholders approved an increase of capital from 27,500,000 marks to 34,640,000 marks, or from $6,545,000 to $8,244,320. Announcement was also made of the possibility of the company erecting mills abroad where production facilities and costs are more advantageous than in Germany. Feldmuehle Papier und Zellstoffwerke of Stettin and Reisholz of Dusseldorf also report an improvement in the business situation. All three companies are expected to pay higher dividends than last year.

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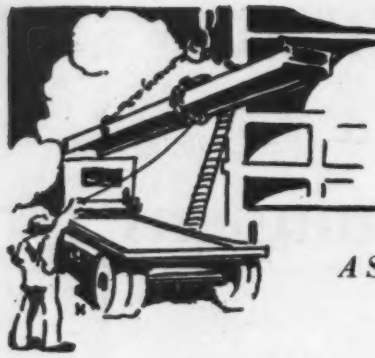


CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Red Lion, Pa.—The Red Lion Carton Company, manufacturer of corrugated paper containers, egg filling cases, etc., is said to have plans under way for increased capacity, and will install additional equipment at an early date. The company is now occupying leased quarters and contemplates the construction of a new plant on local site, in the future, with facilities for considerable advance in present output.

Baltimore, Md.—The Chesapeake Paper Board Company, Key Highway and the Baltimore & Ohio Railroad, will defer actual construction of its proposed new addition, it is said, until early in the coming year, and call for bids will be deferred until that time. The proposed structure will be one-story and will include improvements and alterations in present mill, estimated to cost about $75,000, with equipment. William W. Kerner is secretary.

Van Wert, Ohio—The Container Company, 2604 Albion street, Toledo, Ohio, manufacturer of corrugated paper and other containers, is reported to be planning the construction of a new mill at Van Wert, where tract of land has been acquired, fronting on the line of the Cincinnati Northern Railroad. The proposed structure will be one-story, reported to cost in excess of $50,000, with machinery. Plans will be drawn at an early date. A. H. Miller is secretary.

Manitowoc, Wis.—The Schmidtman Company, Seventh and Jay streets, paper products, has plans maturing for the early construction of a new three-story and basement addition to be used for storage and distributing service. It will be 35 x 80 feet, reported to cost about $25,000, with equipment. General building contract has been let to Carl R. Berg, 811 Franklin street, and sub-contracts will soon be awarded.

Menasha, Wis.—The Menasha Printing and Carton Company, River street, has work under way on a new boiler house at its plant, to be one-story, estimated to cost about $23,000, with equipment. It is proposed to have the structure ready for machinery installation at an early date. General contract was let recently to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis.

Philadelphia, Pa.—The James C. Berkert Novelty Paper Corporation has leased space in the building at 1631 Chestnut street, and will establish a new works at that location.

San Jose, Cal.—Blake, Moffat & Towne, 41 First street, San Francisco, paper goods, is receiving bids on general contract for its proposed new branch for storage and distributing service on local site. It will be one-story, reinforced concrete, estimated to cost about $45,000, instead of a larger sum previously noted. John D. Galloway, First National Bank Building, San Francisco, is architect and engineer.

Appleton, Wis.—The Kimberly-Clark Paper Company, Neenah, Wis., is said to be planning the rebuilding of the beater room at its local mill, damaged by a collapse of the structure on October 7. An official estimate of cost has not been announced.

Brooklyn, N. Y.—The Irving Pitt Manufacturing Company, Kansas City, Mo., has leased space in Building No. 6, of the industrial group at the Bush Terminal, South Brooklyn, and will use in connection with eastern operations. The company specializes in the production of blank books, loose-leaf devices, etc.

Pearl River, N. Y.—The Dexter Folder Company, 28 West 23rd street, New York, manufacturer of paper folding machines and devices, has completed plans for the construction of a one-story building at its plant at Pearl River, reported to cost about $30,000. Plans were drawn by W. E. Truesdell, 5 Beekman street, New York, consulting engineer. The company has recently arranged for an increase in capital from $2,000,000 to $2,446,200, for expansion.

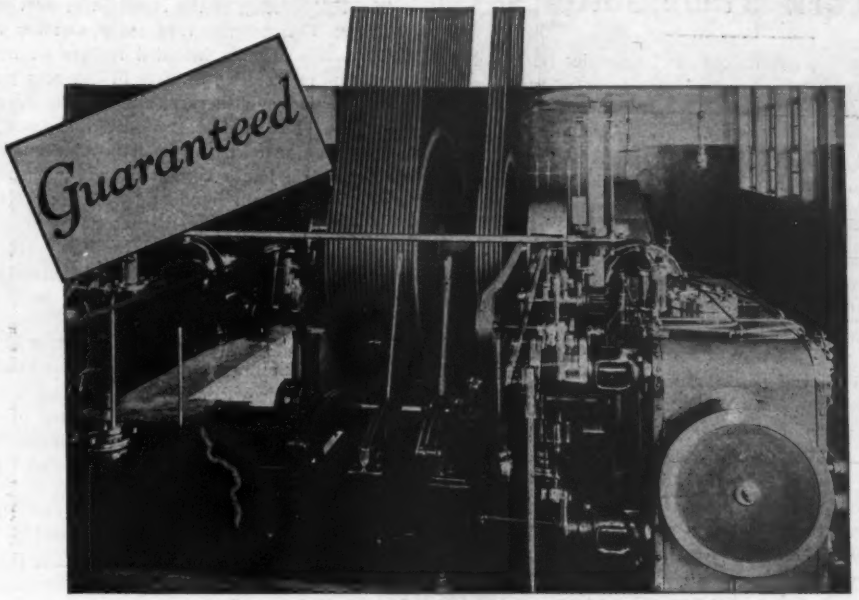
Chicago, Ill.—The Bates Valve Bag Company, 8200 South Chicago avenue, manufacturer of paper bag filling equipment and devices, has plans under way for the construction of a new one-story plant at Cap de la Madeleine, Que. It will be 80 x 200 feet, reported to cost in excess of $85,000, with machinery.

Hull, Que.—The International Fibre Board Company, Ltd., Montreal, Que., is said to have selected a site at Gatineau Point, near Hull, Que., for a proposed new fiber board mill. It will consist of a number of units with electric substation, machine shop, and auxiliary buildings, reported to cost more than $2,000,000, with machinery. Facilities will be provided for the employment of about 200 operatives. It is planned to have the initial building ready for service early in the spring of the coming year. The company is affiliated with the Canadian International Paper Company, Montreal.

Dolbeau, Que.—The Lake St. John Power and Paper Company, Ltd., is pushing construction on its new local mill and proposes to have the initial unit ready for service before the close of the year. Two paper-making machines for news print production will be installed, with considerable auxiliary equipment. The entire project will represent an investment said to be more than $1,000,000. E. A. Walberg is president.

Murray Bay, Que.—The Murray Bay Paper Company, Ltd., has construction in progress on a new news print mill on the St. Lawrence River, about 6 miles from Murray Bay, to be equipped for a production of about 120 tons per day. The plant will consist of several units and is scheduled to be ready for service early next spring. It will represent an investment of more than $2,000,000. The company has leased a pulp mill, with rating of about 130 tons per day, and will operate for raw material supply. To provide funds, in part, for the project, a bond issue of $2,000,000 is being sold. George H. Mead is chairman of the board of directors.

Helsingfors, Finland—The Government of Finland, Helsingfors, is said to be perfecting plans for the construction of a new chemical pulp mill in the vicinity of Veitsiluoto, in the northern part of the country, where a large sawmill is now operated under Government direction. It is proposed to arrange a fund of 60,000,000 Finnish marks (about $1,511,350) for the proposed new pulp mill, and such proposition will be considered by the diet at an early date. The American Consulate, George L. Tolman, consul, Helsingfors, has information regarding the project.



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Auburn, "*The Cordage City*" N. Y.

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New York Trade Jottings

R. S. Kellogg, secretary of the News Print Service Bureau, New York, was in Washington early this week from whence he entrained for Chicago.

* * *

The New York Division of the Salesmen's Association of the Paper Industry held their regular weekly luncheon and meeting at the Canadian Club, New York, on Monday and spent an enjoyable session.

* * *

Dr. Hugh P. Baker, secretary of the American Paper and Pulp Association, New York, is attending the fall meeting of the National Paper Trade Association in Chicago this week.

* * *

John D. Grothe, Technical Director of the Societe-Dorr et Cie of Paris, arrived in New York on October 18. He will spend several months studying the progress made in engineering since his last visit to this country five years ago.

* * *

Homer E. Rosenberg, chemical engineering student at New York University, who spent the past summer working in the mill of Gilbert Paper Company, Menasha, Wis., has secured a position as assistant chemist at the Newton Falls Paper Company, Newton Falls, N. Y. As Mr. Rosenberg has finished his third year at the University, he will receive credit for the work he does at Newton Falls on the basis of his reports and those of his employers. He expects to return to college next year to complete his course. Mr. Rosenberg's home is in Binghamton, N. Y., where his father is pastor of the Methodist-Episcopal Church.

News Print Bureau Accountants and Engineers Meet

The Fall meeting of the Cost Accountants and Engineers of the News Print Bureau members was held at the Canadian Club, New York, on Tuesday, October 18. The morning session opened with an analysis of paper machine operation, including a discussion of Data prepared by members of the bureau.

Cost and operating problems in the news print industry was the next subject taken up, followed by a discussion by Bureau members of questions concerning the comparative cost and operating data and matters relating to progress in manufacturing operations.

John T. Madden, Dean of the School of Commerce, Accounts and Finance, New York University, opened the afternoon session with an address on "Costs and Management." E. A. Brissett, of Price Bros. & Co., Ltd., and H. F. Ballard, of Finch, Pruyn & Co., led the discussion which followed.

E. B. Norcross, of the International Paper Company, New York, also gave an interesting address on the budgetary control problems of his organization.

Michael Redmond Heads Kalamazoo Div.

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., October 24, 1927.—Michael Redmond, general superintendent of the Kalamazoo Paper Company, is the newly elected president of the Michigan Division of the American Pulp and Paper Mill Superintendents Association. He succeeds George Pountain, who has been the capable presiding officer for the past three years.

Mr. Pountain in turn succeeds Alfred Bryant as secretary-treasurer of the organization. Mr. Bryant has held the office two years.

Three vice presidents named are: Clarence Thorne, Watervleit Paper Company, first; Clarence Harker, Watervleit Paper Company, second, and Jacob Parent, Western Board and Paper Company, third.

News Print Bureau Meeting and Luncheon

The Fall meeting of the News Print Service Bureau was held at the Hotel Commodore, Wednesday, October 19. The program for the business meeting included reports on news print production, shipments and stocks, imports of overseas paper, news print consumption and publishers stocks, volume of advertising, new machines 1927-1928, and general conditions throughout the industry.

Following an excellent and enjoyable luncheon, which was very well attended, James Wright Brown, publisher of *The Editor and Publisher* gave an illuminating talk on "Newspaper Advertising Tendencies" and declared that the outlook was considerably brighter now than it was a year ago. He said that volume of advertising has been excellent during the past nine months and that circulations continue upward.

P. H. Whaley, of the Whaley-Eaton Service, Washington, D. C., addressed the gathering on "The Business Situation in 1928." He stated that, despite over-production, a continuous period of American prosperity was insured, as the nation is even now only in the process of building the industrial plant of the country. Other interesting addresses on economic conditions were given by Byron W. Holt, of Goodbody & Co., and Colonel George Roth, of the Harvard Economic Service.

R. S. Kellogg, secretary of The News Print Service Bureau, made a few timely remarks, and referred to a booklet which had been presented to each guest, entitled "The Importance of Calendar Reform to the Business World," by George Eastman. Mr. Kellogg pointed out the many advantages of the proposed International Fixed Calendar, and the suggested innovation seemed to secure the unanimous approval of those present.

Competition on Part of Canada and Finland Keen

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 24, 1927.—Responsibility for the falling prices on the German, as well as the Scandinavian, market is ascribed to increasing production on the part of Canada and Finland. The latter at present is understood to be offering news print on the London market at around $62 per long ton, c.i.f., and to be offering very stiff competition to the former country. Norwegian news print, which was quoted at approximately $74 per ton at the end of 1925, is now selling as low as $57 f.o.b. Norwegian port. Swedish prices have also fallen from $78 to $58 during the same period, and under these conditions it may be expected that German news print prices will decline further.

German chemical pulp manufacturers, in common with other European producers, are experiencing some concern regarding the low prices at which the Canadian product is offered, and which it is feared will prevent them unloading their increased output at a profit. German exports of chemical pulp during 1926 were valued at nearly $63,000,000 marks (approximately $15,000,000).

Gets Patent on Controlling Device

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 24, 1927.—Two residents of Columbus, Ind., Darcy E. Lewellen, Emmons F. Lewellen, both of the Lewellen Manufacturing Company, have been granted a patent on a controlling device to be used by paper mills. The patent is an addition to several already held by the firm and deals with an automatic controlling system to maintain a uniform thickness in the paper. They say orders for the new machine are booked up to the last of February.

Kelso Paper Co. Gets License for Oregon

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., October 21, 1927.—The Kelso Paper Company, with a capital stock of $200,000, has been granted a license to transact business in Oregon. P. J. Gallagher, 1202 Bedell building, has been named attorney in fact.

This Trademark

Is the Mark of Quality and Service in Felts and Jackets

For 36 years Appleton Felts and Jackets have been outstanding for quality and service, and have solved the felt problems of mills throughout the country.

Let this experience be your guide in solving your felt problems.

APPLETON WOOLEN MILLS
Appleton, Wisconsin

Appleton
Felts and Jackets

Power Plant Section

To Promote the Most Efficient and Economical Distribution of Power

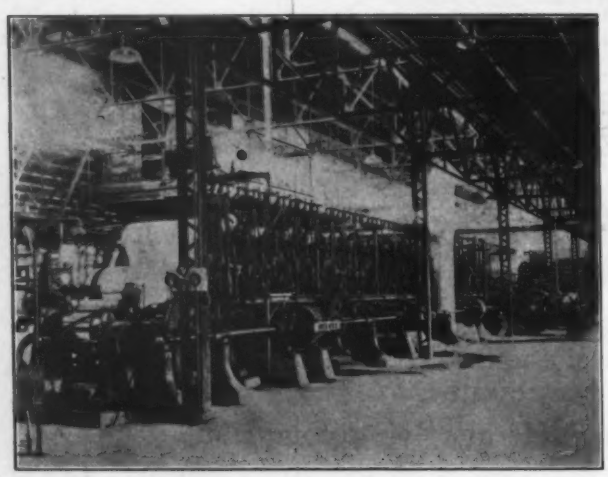
Reducing Power Costs Through Unit Treatment

Conducted by REGINALD TRAUTSCHOLD, Consulting Engineer

Variable Speed Transmission Stimulate Output

The compact, highly efficient, variable speed transmissions, which have permitted the attainment of that sensitive and accurate control of machine speeds so essential in paper making, in the effective conduct of the many related operations in pulp and paper mills, and in the fabrication of the numerous paper, pulp and board products, have probably done more to bring about the truly remarkable strides made in the paper industry during recent years than any other single mechanical development. For this reason, it is not at all surprising that the manufacturers of at least three distinctive and quite dissimilar types of variable speed transmission units can point with justified pride to specific installations of their equipment in paper mills, where such units are daily making possible quantity and quality output records which outrival even the production attainments in the automobile field, so frequently held up as the outstanding example of modern industrial progress.

These three types of variable speed transmissions, the respective merits of which are so nearly on a par or are so dependent upon local conditions as to defy any arbitrary ranking, may be termed the mechanical, hydraulic and planetary varieties for the purpose



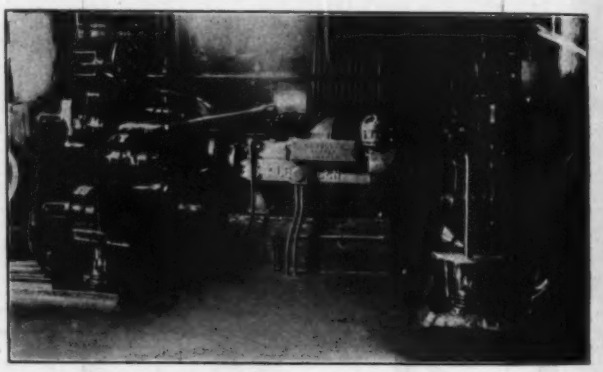
Courtesy Reeves Pulley Co.

FIG. 1

Variable Speed Transmissions in tandem drive separate parts of this paper machine, permitting sensitive regulation of all parts through the chief transmission and of the parts through the seven secondary transmissions.

of differentiating between them. It is in this order that they have become familiar to the paper industry and it is in the same order they will be discussed briefly. Illustrations and examples of their use will be presented, rather than any technical description, and results emphasized, rather than detaails of how the results are secured.

The mechanical variety of variable speed transmission hardly requires a descriptive introduction to the paper industry, for there are installations of such units which have been in continuous operation for the past twenty-five or thirty years in paper mills. For instance, such a unit was installed in the plant of the National Asbestos & Manufacturing Company, Jersey City, N. J., in 1901 and has been in continual 24-hour service ever since. Incidentally, it is transmitting today approximately 110 horsepower, although as and when installed it was rated as an 82-horsepower unit, maximum. In another and neighboring mill, quite a number of these



Courtesy LeWellen Manufacturing Co.

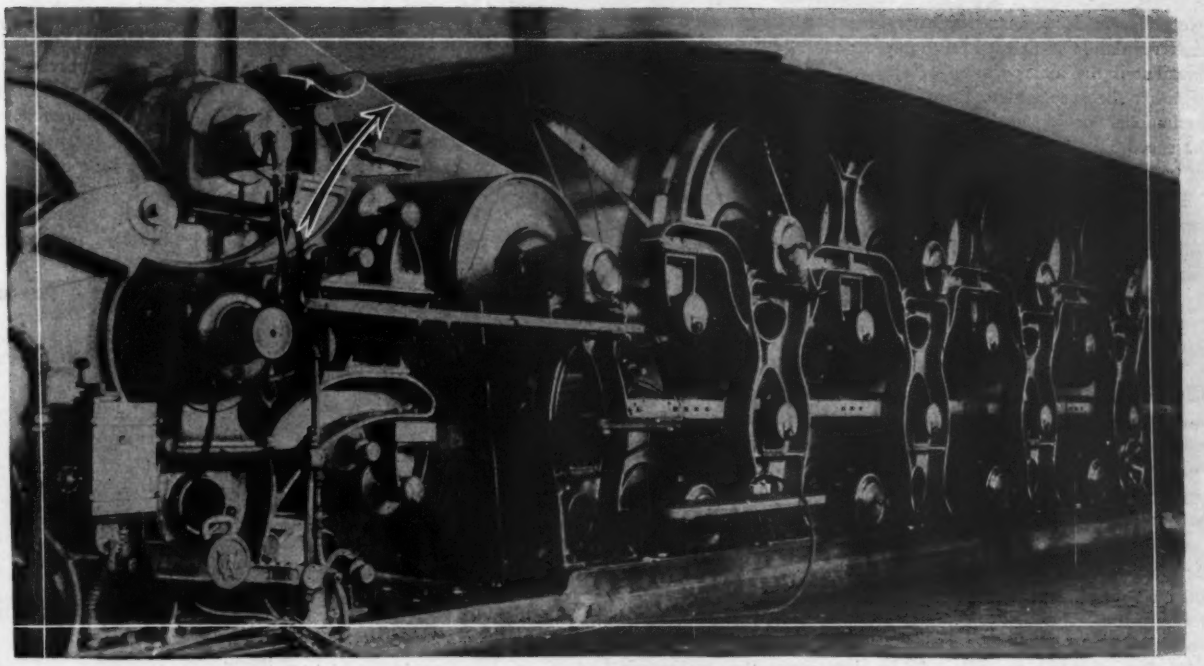
FIG. 2

Variable Speed Transmission control of a distant paper machine by regulating the governor speed of a cross-compound engine at the Gardner-Harvey Paper Company, Middletown, Ohio.

units are in use, a dozen or more, the first installed over twenty-five years ago and the last being just put in place.

The device consists essentially of two parallel shafts, held in a rigid frame, on which spool-shaped pulleys, consisting of a pair of cone-shaped discs with their apexes facing toward one another, are mounted and upon which runs an endless belt, wedge-shaped in cross section. Right and left hand shifting, or speed changing, screws cause the discs forming either one of the transmission spool-shaped pulleys to be moved further apart while the discs forming the other transmission spool-shaped pulley are brought correspondingly closer together. The center spacing of the transmission pulleys is not altered in any respect, so the side adjustment of the pulley discs causes a speed ratio change of from zero, when the discs of the respective spool-shaped pulleys are separated an equal distance, to the limiting capacity of the unit. This may be as high as 16 to 1, up or down, either transmission pulley functioning as the low speed member of the combination.

The shifting of the pulley discs necessitates simply the manual operation of a mechanical type shifter or the throwing of a switch, as either mechanical or electrical control can be exercised. The control may be adjacent to the driven machine or at any desired more remote location. Or, the shifting of the discs may be performed automatically and effected, as in mechanical and electrical controls, without stopping the driven machine. Control can be



A photograph of the draw between Third Press and Dryers of 232". 800 feet per minute newsprint machine at the St. Maurice Valley plant of the Belgo Canadian Paper Co. This machine is equipped with C-H (Harland) Drive.

Equipped with C-H *(Harland) Drive*

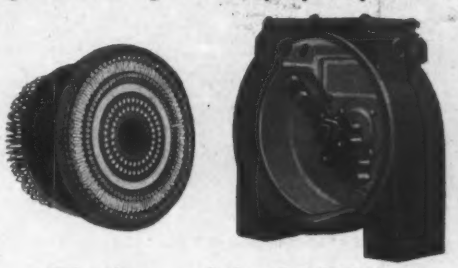
Running 800 ft. per minute—
Camera shows no vibration of sheet

NOTHING BUT perfect synchronism between sections could maintain such uniform draw that a sheet traveling 800 ft. per minute would fail to show vibration.

Think of the effect such smoothness of operation has on paper texture, weight. Think what it enables in increased running speeds—in elimination of time-wasting "breaks"—in decreased costs.

The C-H (Harland) Sectional Inter-Lock Paper Machine Drive on the machine shown above is setting new records in quantity and quality production. Considering all that it does, you will be surprised at its remarkable simplicity. Nothing about this drive that your mill electrician won't understand after twenty minutes study. No complicated banks of control panels—none of the delicacy of adjustment you usually associate with sectional drives.

You will want to know the complete facts about this interesting drive—what you can expect it to accomplish in your mill. Just write today and C-H engineers will be glad to send you full information.



"The heart of the C-H Drive"

The C-H Differential Regulator. This simple device on the drive of each section maintains perfect synchronism. It responds instantly to speed change from the guiding unit or from the master controller.

The CUTLER-HAMMER Mfg. Co.
Pioneer Manufacturers of Electric Control Apparatus
1226 St. Paul Avenue
MILWAUKEE, WISCONSIN

CUTLER C-H HAMMER

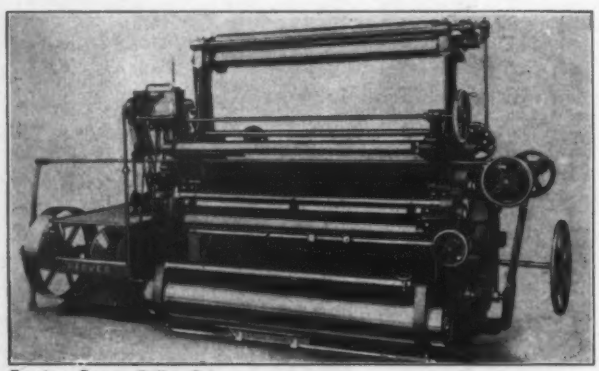
Industrial Efficiency Depends on Electrical Control

exercised, in fact, from several widely separated stations when such regulation is deemed advisable or necessary. A further refinement is the incorporation of speed indicators and tachometers of either the speedometer type, similar to the mileage recorder on automobiles, or of an electrical type for remote control, by which the speed situation at any machine location can be instantly noted by operative or other interested individual.

The uses to which such a device can be profitably put in the paper mill and its power plant include almost every operation entailing the transmission of power—transmissions to the paper machines proper, to paper cutters, corrugators, printing machines, creasers, slotters, double-backers, gluers, pasteing machines, rewinders, fly knives, stayers, winders, tube machines, cut-off machines, and, in fact, to almost any power device in the mill, and to many in the power plant as well. At the Holyoke Mills of the American Writing Paper Company, for illustration, four such transmissions are employed for driving paper machines, five for operating cutters, two for drier drives and one for driving a rag conveyor, a total of twelve variable speed transmissions of the mechanical variety. These transmit from 10 to 100 horsepower each and effect very substantial savings.

A 40-horsepower unit, driving a 48-inch paper machine at speeds varying from 30 to 235 feet per minute in one of these Holyoke mills, costs, taking into account all fixed charges, maintenance and operating expenses, $3.62 a day and effects an annual saving of from $937.50 to $1,875.00, depending upon whether one or two speed changes a day are entailed. In eight years, the total repair expense for this particular transmission, which is included in the $3.62 unit cost figure per day, has been well under $1,500.00.

An interesting installation, well illustrating the push-button control of the speed of a paper machine, is at the plant of the Gardner-Harvey Company at Middletown, Ohio. The transmission in this case is employed for driving the governor on a Hamilton cross-compound engine and is controlled from several push-button stations located along the line of the paper machine. The



Courtesy Reeves Pulley Co.

FIG. 3

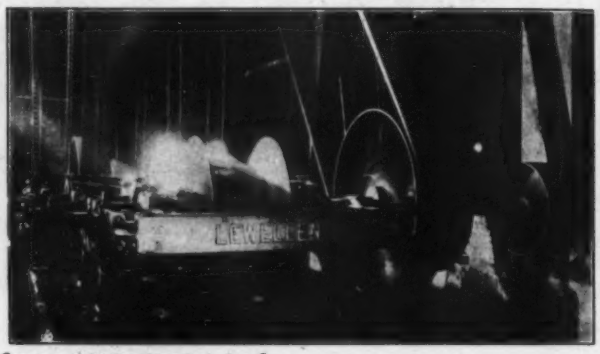
Corrugator with speed control by an incorporated Variable Speed Transmission.

constant speed shaft of the transmission is coupled directly to the engine governor shaft, while the variable speed shaft is connected to the engine crank shaft through a silent chain drive. The engine room, incidentally, is situated some 300 or 400 feet from the cutter end of the paper machine. The transmission with full ball bearing equipment and the remote control cost somewhat less than $500.00.

Another interesting installation is at the Michigan Carton Company, Battle Creek, Mich., where one of these transmissions replaced a system of cone pulley drive formerly depended upon for driving a machine employed for cutting sheets of paper board to prescribed lengths at any machine speed, the speed range of the machine being from 70 to 225 feet per minute. With the old cone drive, belt slippage caused considerable variation in the length of the sheets cut. With the substitution of the variable speed transmission unit, located in the basement directly below the cutter, such variations in length of sheets cut virtually disappeared. An examination of a considerable output failed to unearth a single sheet which varied as much as one-eighth of an inch from standard in length, a situation which was directly responsible for a second cutter being driven in like manner.

Hydraulic Type of Variable Speed Transmission

The hydraulic type of variable speed transmission, consisting essentially of two units, a pump and a hydraulic motor contained



Courtesy LeWellen Manufacturing Co.

FIG. 4

Variable Speed Transmission drive of board cutter shown in Fig. 5 at the Michigan Carton Company, Battle Creek, Mich.

in a single compact assemblage or else with the units separated and connected together by suitable piping, has aroused considerable attention and has been installed in quite a number of prominent paper mills during the past three or four years. For the most part, these installations have been on paper machine drives, though a goodly number of rewinder and slitter, calender, cutter and drier drives have also been equipped with these devices.

The pump unit of the transmission is provided with a control shaft by which the flow of the transmitting medium, usually oil, which drives the motor unit is under the sensitive control of the operator. By varying the pump discharge, the speed of the motor unit is proportionally altered. Any speed from zero to the maximum for the device is thus easily and positively secured, the control shaft being manually operated or, if so desired, under remote control. The mechanism provides an excellent means of employing a single large constant speed power unit for a complete paper machine drive, actuating the constant speed line at a consant speed and permitting the variable speed line to be driven at any desired speed.

In this connection, the experience with the first of these transmissions to be applied to a paper machine is of real passing interest. In 1924, the Hollingsworth & Vose Company had the courage to decide to install the device to run its 84-inch, four-cylinder paper machine in its mill at West Groton, Mass. This concern, by the way, was the first of the paper industry to venture dependence upon such a transmission for power delivery. In fact, there was still some doubt in its mind as to the ability of the device to deliver power at a speed constant enough to meet requirements when the order for the transmission was placed. The paper company deemed it advisable to insist that the device be first installed on a temporary wooden scaffold erected midway between the constant and variable lines of the paper machine, in such manner that should the device not function satisfactorily the belt between the constant and variable speed cones could be easily replaced and the original drive restored.

After about eight weeks of most carefully observed service, the transmission was taken from the wooden scaffold and permanently mounted upon a suitable foundation. The speed cones were discarded and the installation endorsed as being entirely satisfactory to the paper company. Since then, the only attention which has

Different & Finer Results from Different, Finer Engineering

Tried and proven engineering fundamentals have been adhered to; but they are applied in new and different ways that produce sensational results.

Note the following

Every known Jordan convenience such as positive locking device, micrometer adjustment, quick opening inspection and clean out covers, seal breakers, etc., is incorporated.

Anti-friction bearings, now generally accepted as a decided economy, have been installed in such a way that they never have to be disassembeld from the shaft. This eliminates any possibility of damage when chipping or changing fillings, and, at the same time, means a further substantial savings in time. In other words, a manufacturer's bearing guarantee of "years of trouble-free operation" can mean something.

The packing boxes too remain undisturbed on the shaft until the packing is completely worn out.

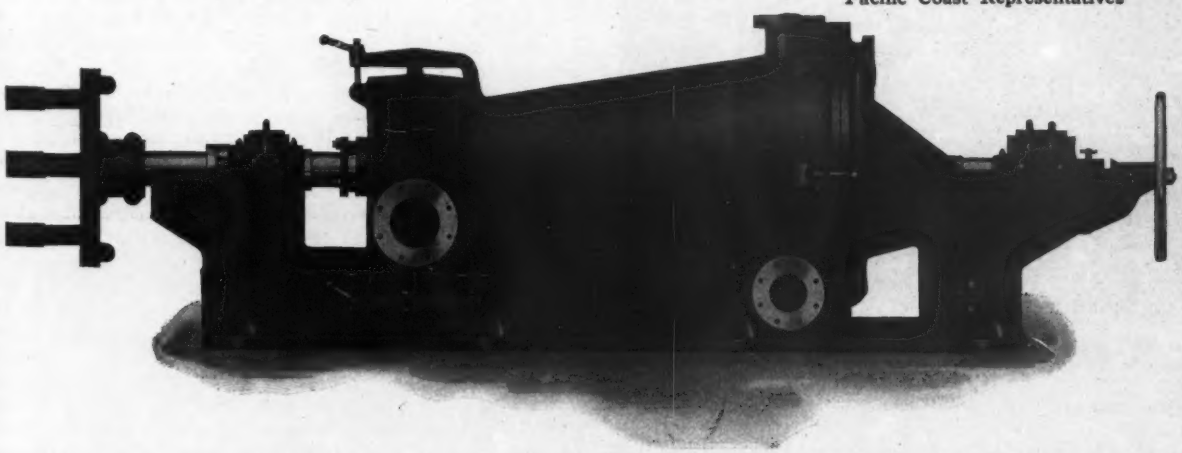
Any type filling can be supplied. The machine is especially adaptable to one-piece, or sectional, fillings for both plug and shell, and, the above patented features become still more valuable with their use.

THE HERMANN MANUFACTURING CO.

Lancaster, Ohio

Waterous Limited, Brantford, Canada
Canadian Representatives

A. H. Cox and Co., Inc.
Seattle, Washington
Pacific Coast Representatives



NO.3 HERCULES JORDAN

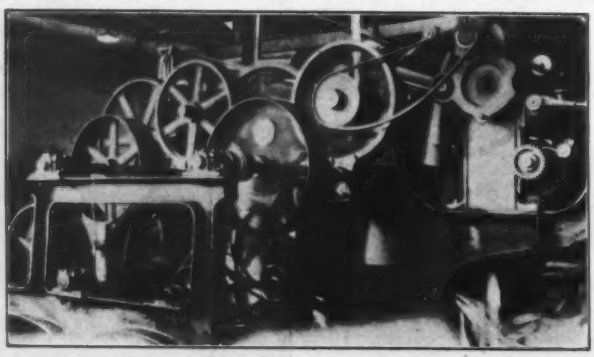
been required for the transmission has been a very occasional replenishment of the functioning oil supply.

The same year, the Strathmore Paper Company installed one of the hydraulic variable speed transmissions to drive a Hamblet cutter at its Woronoco, Mass., mill. The Worthy Paper Company, Mittineague, Mass., put in such a drive for the variable line of its 66-inch Fourdrinier and the Brown Company, Berlin, N. H., selected such a transmission to drive a machine for making paper tubes for underground conduits. Since then, there has been quite noticeable activity in adopting such transmissions as units in various paper mill operations.

Within the past three months, for instance, the Robert Gair Company, New London, Conn., has adopted the hydraulic transmission to drive its 120-inch Langston rewinder and slitter; the Manchester Board and Paper Company, Richmond, Va., for driving the variable line of its 110-inch, 5-cylinder board machine; the Millers Falls Paper Company, Millers Falls, Mass., for its 90-inch Fourdrinier; and the Hampshire Paper Company, South Hadley Falls, Mass., for the variable line of a Fourdrinier. During the same period, the Escanaba Paper Company, Escanaba, Mich., has adopted the unit as the drive for its 166-inch news print winder and the A. P. W. Paper Company, Albany, N. Y., has decided upon it for the drive of its Harper Fourdrinier.

Planetary Type of Variable Speed Transmission

The third of the varieties of variable speed transmissions of interest to the paper industry is of the planetary variety, the motion of the high speed shaft being transmitted to the low speed shaft through the planetary movement of three rollers of distinctive form swinging about fixed outer races. By altering the relative position of the rollers and races by means of a hand wheel mounted about the high speed shaft of the compact, motor resembling, unit, any desired speed reduction is secured over a prescribed variation range of usually about 5 to 1.



Courtesy LeWellen Manufacturing Co.

FIG. 5

Cutter so sensitively regulated in respect to speed that there is virtually no variation in the length of the paper board sheets cut at the Michigan Carton Company, Battle Creek, Mich.

Two types of these transmissions are now on the market for transmitting up to 15 horsepower, one permitting a maximum reduction up to about 8 to 1, with a variation of about 5 to 1; and the other permitting a speed reduction up to about 40 to 1, also with a variation of about 5 to 1. These rather confusing ratings signify that the lower range transmission, if connected to a 1,200 r.p.m. motor, can furnish power at its low speed shaft at any speed between 150 and 750 r.p.m.; and the higher range transmission, coupled to a similar motor, any speed from 30 to 150 r.p.m.

While these transmissions have yet to establish themselves in the paper mill field, their characteristics are such as to give considerable promise of their proving very applicable to the service requirements encountered. At their full rated capacity, they have shown an average operating efficiency of well over 95 per cent, and they have proved very satisfactory in many installations made in textile mills. In plants more directly connected with the paper industry, installations which have proved very successful have been made at the Arnold Print Works, North Adams, Mass., and the Flintkote Roofing Company, Chicago Heights, Ill.

Stimulation of Paper Output

Variable speed transmissions of any approved and efficient variety are very profitably applicable, obviously, to many and diverse

Courtesy Reeves Pulley Co.

FIG. 6

Spiral tube machine driven through the Variable Speed Transmission in the foreground.

duties and services about the paper mill, but their most profitable employment is in connection doubtless with Cylinder and Fourdrinier paper machine drives proper. Their use in such service makes it possible and quite feasible to run any weight of paper desired, from the finest tissue to the heaviest wrapping paper, without having to stop the machine or break down the paper end.

In the operation of paper machines furnished with step cone pulleys or change gear boxes for speed adjustments, it is always necessary to stop the machine to make any required speed change when changing runs, so wasting appreciable time and seriously interrupting production. Furthermore, the paper arrested on the driers is ruined, the paper has to be broken and re-threading is entailed when re-starting the machine on a new run. Even then, it is rarely possible to secure exactly the correct and most efficient machine speed for the weight of paper to be produced without the sensitive gradations in speed to be secured only through the agency of an approved variety of variable speed transmission.

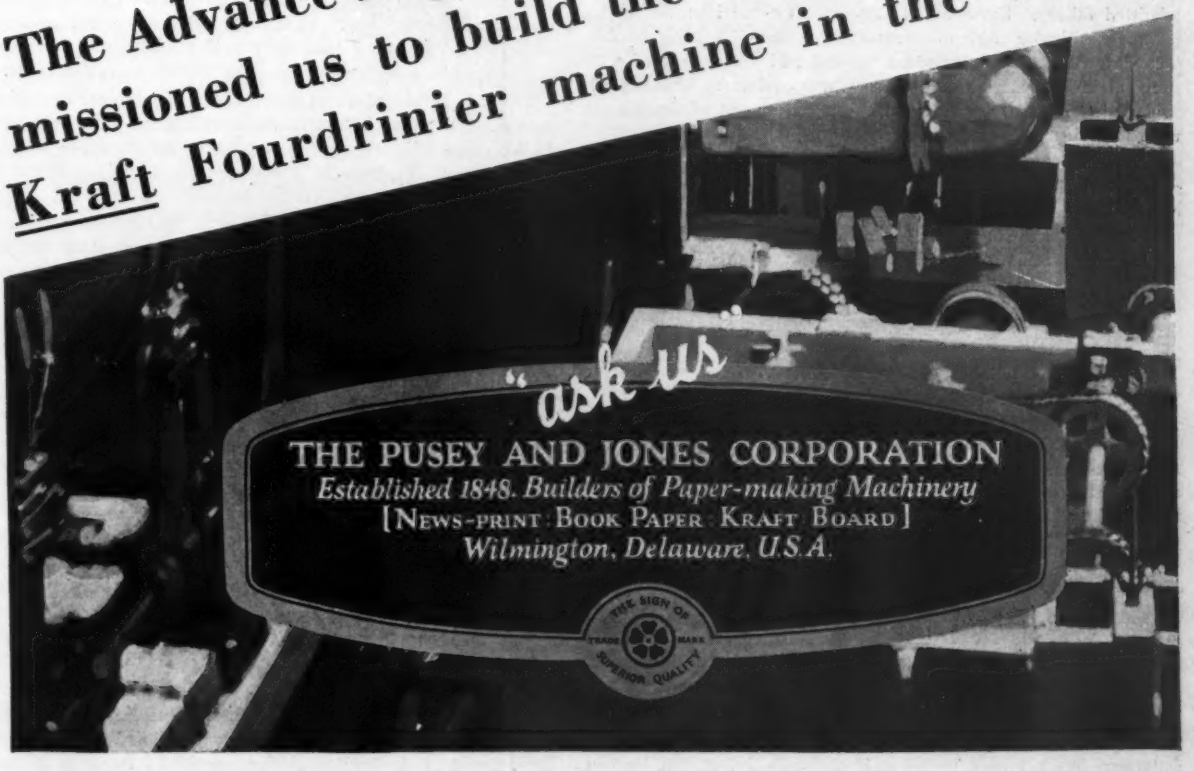
The stimulation of paper output resulting alone makes the employment of the sensitive variable speed transmission control essential in paper making practice, well justifying the very moderate investment entailed for such refinement. That this is now quite well appreciated by the industry is evidenced by the fact that when variable speed steam engines or turbines are employed for driving the paper machine, it is not at all unusual to incorporate a variable speed transmission as standard component equipment for changing the ratio between the speed of the engine or turbine main drive shaft and that of the governor. Where only a few grades and weights of paper are produced, this speed control at the prime mover may suffice, but where a greater variety of output is called for or where quality requirements are such as to necessitate extreme accuracy in speed gradations, it is found that more sensitive regulation is effected with the machine driven directly through a variable speed transmission of adequate and suitable capacity.

Lack of Adequate Cost Data

The virtual indispensability of some suitable variety of variable speed transmission in modern paper making practice has overshadowed, it would seem, the appreciation of the necessity on the

"242 inches wide!"

The Advance Bag & Paper Co. Inc., have commissioned us to build the widest and fastest Kraft Fourdrinier machine in the world.


"ask us"
THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-making Machinery
[NEWS-PRINT · BOOK PAPER · KRAFT BOARD]
Wilmington, Delaware, U.S.A.
THE SIGN OF TRADE MARK SUPERIOR QUALITY

part of both mill users and manufacturers of these devices to maintain systematic and dependable operating cost records. At least, this would appear to be the case from the quite noticeable lack of obtainable cost data regarding the savings effected through the employment of modern units of this character. It is partly for this reason that three general systems of variable speed transmissions have been mentioned and briefly discussed instead of presenting a more comprehensive discussion on one specific system.

With at least three approved systems of variable speed transmissions available and distinctly applicable to the service requirements of the paper mill, it is not possible for all three systems to be equally suitable and desirable in all cases. Local and special conditions are influencing factors, without doubt, but the dominant consideration in all cases is a matter of cost, of total cost and not simply purchase price. Manufacturers and users of variable speed transmissions, as well as of practically all other standard power and production units employed in the paper mill, are gravely remiss in not knowing what these units cost to operate and what the savings are that they effect under known and determinable conditions.

Information of this character would certainly prove a most valuable asset to any manufacturer of variable speed transmissions, though it pertained only to the device of his own production. It is the kind of information, furthermore, desired by the paper industry customers of these same manufacturers and it is the kind of information which will do most in stimulating progress in the paper making industry. The manufacturers alone cannot supply the information satisfactorily. The cooperation and assistance of the paper mills are necessary. Furthermore, it is to the very decided advantage of the mills to supply as much information of this character as possible.

Failure of a paper mill to know accurately all its various manufacturing and production costs of all kinds is quite inexcusable in modern business practice. For a mill to believe that it can in any way benefit through maintaining such cost data secret is today an admitted fallacy. For a mill to attempt to conceal such statistics is simply to invite much unnecessary expense and to seek trouble. The days of capitalizing upon shop and mill secrets passed with the general introduction of modern power equipment of standardized character and the passing of any great amount of dependence upon the manual skill of expert artisans.

When more cost statisics are available, the subject of variable speed transmission applications in paper mill service will be discussed further in these columns. The aim of these fortnightly presentations is to supply the paper mills with information, largely of an economic nature, which will serve to promote the most efficient and economical use of power in the paper mill and by so doing to reduce and stabilize production costs.

German Paper Mills Increase Output

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 24, 1927.—The output of the German pulp and paper mills during July was above either of the two preceding months and considerably above the level of the corresponding months of last year, says the Office of the Commercial Attache at Berlin. Exports of paper and board show a slight decline, partly due to seasonal influences. Generally speaking, business in the German pulp and paper industries seems to be extremely sound and prosperous.

Finds No Dumping of Parchment

WASHINGTON, D. C., October 26, 1927.—Investigation has been under way by the Custom Bureau, Treasury Department, for a long time in connection with the alleged dumping of parchment paper on the American market from France. While no official statement has yet been issued it is understood that the Bureau has not found any dumping.

Rebuilt Emerson Plant Bigger and Better

LAWRENCE, Mass., October 1, 1927.—From a mass of wreckage wrought by fire as a start, and completing a fully equipped and thoroughly modern manufacturing plant in the short time of four months would seem incredible, except to those who have witnessed with interest the re-building of the Emerson Manufacturing Company plant at Lawrence, Mass., who have been builders of jordan and beating engines since 1888.

The entire property was leveled to the ground by one of the most spectacular conflagrations in the history of the city and all that was salvaged were the records, drawings and patterns, which were fortunately stored in an isolated office building away from the burning plant.

Undaunted by this visitation of fate and imbued with the idea of service to their trade, the Emerson company immediately made arrangements for the filling of their orders on hand in the plants of friendly machinery builders of which there are six others in Lawrence. This was the first action following the fire and preliminary to the building of a newer and better plant, which now stands.

Just four months from the time the batter boards were driven into the ground there arose a model manufacturing building of the daylight type, with new heavy duty improved machinery all in place, ready to operate 100 per cent, in the manufacture of the Emerson Beaters and Jordans.

The new building, credited with being one of the finest in the city of Lawrence, is of brick and steel sash construction, windows extending without a break from the concrete base to the roof line and is fireproof throughout.

Housed in this new plant is an electric traveling crane of 20 ton capacity, running the full length of the building and having a floor clearance of 20 feet. The crane, in addition to serving all the heavy machine tools, will also facilitate loading and unloading from the spur track which runs into the east end of the factory. The entire equipment is of the heaviest and largest type made for machinery builders. With this full complement of modern, improved labor saving machinery it is reported that this concern will now be in a better position than ever to serve the trade.

Power is furnished direct to the different machines by individual motors. All piping is underground, except the sprinkling system. Lockers and lavatories are of the latest design, made convenient and sanitary. To have built and started operation of this plant in the accredited short time of four months very nearly sets a record for heavy mill construction.

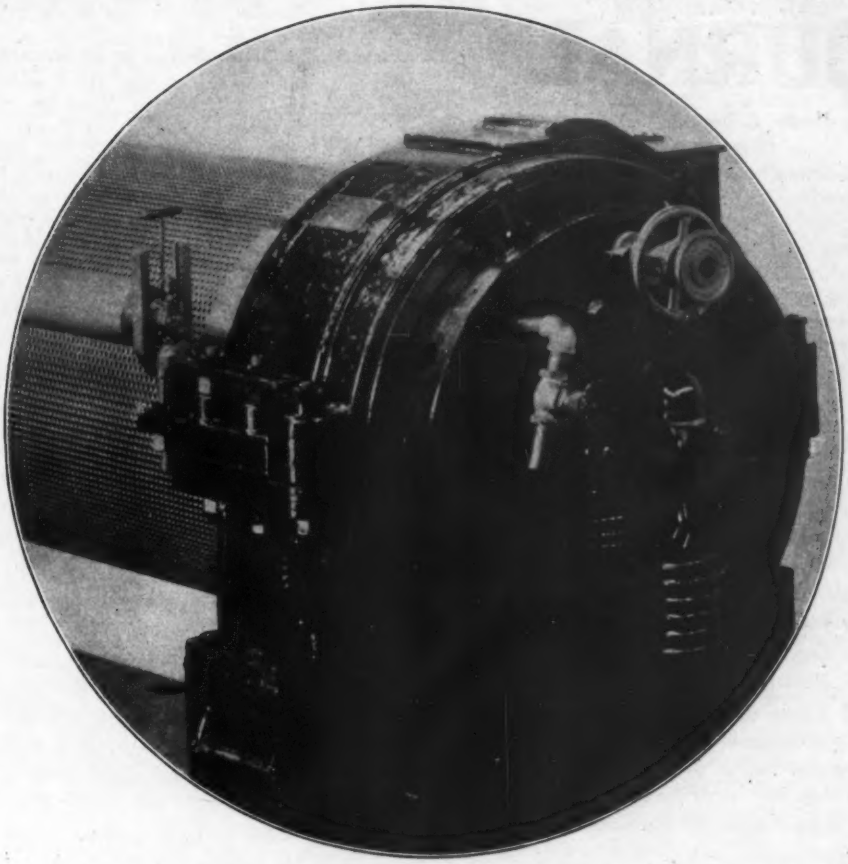
The specialty of this company is Emerson Beaters and Emerson Jordan engines, which are equipped with Bolton-Quality Knives. The name Bolton will be even more closely associated with Emerson than heretofore, since John W. Bolton & Sons, Inc., also of Lawrence, Mass., are financing and operating the Emerson company, though the two plants will function independently, each with its own office, plant and operatives. The Emerson Manufacturing Company will, in the future, be styled Emerson Manufacturing Company Division, John W. Bolton & Sons, Inc.

Backed by the Bolton interests and progressive methods, and combining the long established prestige of the Emerson company, the future of this concern is predicted by its host of friends and customers who wish it success anew.

E. C. Tucker Speaks on Curl in Paper

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 18, 1927.—E. C. Tucker, vice-president and production manager of the Crocker-McElwain Company, gave a talk on "Curl in Paper" at a luncheon of the Fine Paper Division of the New England Paper Merchants Association held at the Chamber of Commerce here Tuesday of last week. Charles A. Esty, president of the Association, presided. Between 20 and 30 were present.



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PAPER TRADE JOURNAL
ESTABLISHED 1872

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BIG GROWTH IN THE PAPER INDUSTRY

The remarkable expansion in the pulp and paper industry on the North American continent is impressively visualized in the text pages of this Annual Mill Number of the PAPER TRADE JOURNAL. The great growth of the industry in the Pacific Northwest in particular is interestingly brought out. Some ten or a dozen mills which have recently started production, which are under construction or which have just been greatly enlarged and improved in this particular section of the country are described and illustrated elsewhere in this number. No section of the country in the history of the pulp and paper industry has ever shown such rapid or such interesting development.

The *Post-Intelligencer* of Seattle, Wash., recently reviewed the developments in the pulp and paper industry in its particular section, presenting, in some instances, perhaps, rather extravagant estimates but withal making such decidedly interesting reading of what is taking place on the Coast that the review is presented in part herewith:—

The most significant industrial advance on the North Pacific Coast in a decade is occurring on Puget Sound, the great industrial area surrounding Seattle, and in one year approximately $15,000,000 has been invested or authorized for investment in additions to present pulp and paper plants or for new plants. In five years production of pulp in this state has increased from 100,000 tons annually to 300,000 tons.

Each year $350,000,000 of new money is brought into the State of Washington from the lumber industry. The state's 300 logging camps and 800 saw mills turn out six billion feet of lumber a year, sufficient to fill a train of box cars reaching more than two-thirds the distance across the United States.

Until recently, however, Washington has done little to utilize the waste from its mills and has been content to merely saw trees and lumber, but the era of utilizing new woods and old waste promises to make the pulp and paper industry bring as much new money into Washington as the present saw mill industry does.

The reason for this remarkable increase in pulp and paper activities in Western Washington is clear—Puget Sound is a logical area for massed production of pulp and paper. This region has cheap, plentiful raw material; abundant and clear water; cheap power; ample and efficient labor; low construction costs and because of cheap water transportation, is able to penetrate growing markets. A brief summary of the production factors, as detailed in the Seattle Chamber of Commerce survey, are:

The United States department of agriculture bulletin No. 1241, discussing the question of how the United States can meet its present and future pulp requirements, says:

"The Pacific Coast states contain about one-fourth of the stand of the pulp species. In these states there are nearly 900,000,000 cords of the pulp species. Washington contains by far the largest amount of spruce, fir and hemlock timber on the Pacific Coast."

In Western Washington there are great stands of spruce, hemlock and cottonwood, and now fir, through an improved process, is being mixed with other woods. Pulp wood delivered at the mill on Puget Sound averages around $8.00 a cord, while Eastern mills are paying from $8.00 to $25.00 a cord. Fir waste can be delivered at the mills as low as $4.50 a cord.

The Cascade and Olympic mountain ranges furnish an unlimited supply of pure water. Sulphur from the Gulf region is brought in here on a low inter-coastal steamer rate, and lime rock is produced locally.

A few of the pulp and paper mills in the East have a five year supply, a few a supply that will last them ten or twelve years, but there are no extensive sources such as may be found in the Puget Sound country.

With the lowest per horsepower installation in the United States, the Puget Sound region is assured of a continued supply of electrical current at the lowest possible cost. There is, and has been, ample developed power for industrial requirements, and power for these mills is purchased at $27.00 per horsepower per year or less.

Because of the mild year around climate (average summer temperature 64 degrees and average winter temperature 46 degrees), and also because of the high percentage of native American employes, labor is rated as 5 to 25 per cent more efficient than in cities where there are extremes of heat in summer and cold in winter.

Because of the cheapness of building material and productivity of labor, and because of the cheap water rate on the transportation of machinery which has to be bought in the East, a paper and pulp plant can be built on the Puget Sound basin as cheaply as Middle West or Eastern seaboard points can build.

From 1918 to 1922 inclusive, consumption of paper in the United States increased from 6,387,000 tons to 8,300,000 tons, and where 6,336,000 cords of pulp wood were necessary to satisfy paper requirements in 1918, 9,148,000 cords were used in 1922. The United States department of agriculture predicts consumption of paper in 1950 will exceed 13,000,000 tons annually.

Of the 9,148,000 cords of pulp wood consumed in 1922, only 50 per cent was domestic, the balance being imported, and of the importations 37 per cent came from Canada. At the present time, there are about 840 paper mills in the United States. Of this number approximately 525 do not possess their own pulp plant, consequently the pulp requirements of these 525 mills must be met in the open market.

The Puget Sound mills, due to low pulp cost and favorable

transportation rates, can supply considerably more pulp to these mills than they are supplying at the present time. Also Japan is a growing consumer of pulp and Puget Sound is the nearest gateway to the Orient.

Puget Sound pulp compressed to forty-five cubic feet per ton is transported from Seattle to New York for $8.00 a ton. Water freight on newsprint from Seattle to New York is $8.40 a ton and the rate on pulp to Japan is $6.00 a ton. Japan is a growing market which can be best served from Seattle, the nearest American port. The rail rate on pulp from Puget Sound to Wisconsin is $13.00; to Ohio $14.00. The freight rate on foreign pulp from New York to Wisconsin is $7.20 and to Ohio $5.70, to which must be added the haul to New York.

Washington mills are now producing pulp, newsprint, manila, tissue, bag paper, fruit wrappers, chip and cardboard, box board, book paper, etc.

Developments of an unusual character have also continued to take place in Canada. Foremost among these undoubtedly has been the placing in operation of the mammoth new mill of the Canadian International Paper Company at Gatineau, Que., equipped with one 150 inch cylinder and four 270 inch Fourdriniers and having a productive capacity of 50,000 lbs. of mill wrappers, 880,000 lbs. of news print, 370,000 lbs. of ground wood and 270,000 lbs. of sulphite pulp per 24 hours. Among other highlights in the developments in Canada during the year are the completion or practical completion of the mill of the Lake St. John Power and Paper Company, Limited, at Dalbeau, Que., equipped with two 245 inch Fourdriniers with a capacity of 440,000 lbs. of news print, 320,000 lbs. of ground wood and 120,000 lbs. of sulphite pulp per 24 hours and the mill of the Ste. Anne Paper Company, Limited, at Beaupre, Que., equipped with two 234 inch Fourdriniers and having a capacity of 500,000 lbs. of news print per 24 hours.

Other than on the Pacific Northwest the only mill of outstanding importance in this country on which construction has begun during the year is the big Kraft plant of the Southern International Paper Company at Camden, Ark. There have, however, been many improvements to existing mills, showing that pulp and paper manufacturers are well aware of the fact the most modern and efficient machinery must be constantly installed in their plants in order successfully to meet present day competition.

To Oppose Advance in Freight Rates

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., October 22, 1927.—A hearing is scheduled for this city in November to consider the proposal of the railroads of the Trunk Lines System to make drastic advances in freight rates to the South which will greatly affect the paper industry. At this hearing the proposal of the railroads will be opposed by the Southern Freight Classification Committee on Pulp and a committee of the Pulp and Paper Traffic League.

A special meeting of the Pulp and Paper Traffic League was held in Buffalo Wednesday and many of the Northern New York paper concerns, including the St. Regis Paper Company and its affiliated concerns, were represented. At this meeting plans were made to fight the proposal of the railroads.

Joseph A. Quinlan, traffic manager of the St. Regis Paper Company and its subsidiaries, earlier in the week attended a conference in Syracuse of the Syracuse Traffic Club at which traffic problems were discussed.

Deerfield Glassine Co. Starts Mill

[FROM OUR REGULAR CORRESPONDENT]

MONROE BRIDGE, Mass., October 24, 1927.—The Deerfield Glassine Company, new Monroe Bridge industry which has taken over the town's sole mill that was formerly operated by the Deerfield Valley Paper Company, has refitted it with machinery representing a heavy investment and began operations last week when the new machines turned for the first time.

John Buell, of Wilmington, Vt., assistant treasurer of the concern, estimated the number of persons who were given employment when the doors of the re-equipped mill were opened, at 120, but a considerable number of these are still employed on construction work about the mill buildings and the mill owned property about the plant. Many of the others, however, are employed in the different phases of the new manufacturing process, the product of which is glassine, a very thin and transparent but strong paper. Practically all of the residents of the town are experienced paper mill workers. Many of them have spent the greater part of their lives in the old Deerfield Valley Paper Company plant which closed in May and are competent to take places in the new industry in which the processes are, for the most part, identical with those to which they are accustomed, although brand new machinery has been installed in some departments, including a new paper making machine. During the summer months, after the Deerfield Valley Company closed, some of them found employment on farms through the Deerfield Valley, a few went to other manufacturing plants scattered between Hoosac Tunnel and Wilmington and others found employment in the construction work that has been going on at the plant, preparing it for the new concern.

According to officials of the company, they expect that operations will continue, uninterrupted, from now on.

As conditions warrant, the payroll will be increased until ultimately 150 or more persons are employed in the plant, it was said. The mill is operated by electric power, drawn from the lines of the New England Power Company which controls the Deerfield Valley water rights and operates the big power plants that have completely changed the character of the country between Hoosac Tunnel village and Wilmington within the past decade.

Superintendents To Meet at Newark

The Pennsylvania-New Jersey Division of the American Pulp and Paper Mill Superintendents Association is to hold a meeting at the Newark Athletic Club, Newark, N. J., on November 4, 1927.

This is to be followed by a banquet and entertainment. The committee in charge have arranged a very interesting program, which includes visits to the plants of the Eastwood Wire Manufacturing Company, the General Electric Company, and the Manhattan Rubber Company. Bring the ladies.

Registration is at 9 a. m. and a large crowd is expected.

Very good rooms are available at the club, either double or single, with bath, at reasonable rates ($3 single, $6 double) for men only. If accompanied by ladies reservation should be made at the Robert Treat Hotel, Newark, N. J., which is just across the street. It is 30 minutes to Broadway from either of these places by Hudson Tubes.

John C. Monty Leaves St. Regis Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

NORWOOD, N. Y., October 22, 1927.—John C. Monty, since 1926 superintendent for the St. Regis Paper Company, has severed his connections with the firm. Mr. Monty served under General Superintendent E. L. McCormack and has had charge of the Norwood, Norfolk and Raymondsville mills of the company. He has not announced any plans for the future. Before becoming associated with the St. Regis Paper Company Mr. Monty was with the Great Northern Paper Company and also saw service in an executive capacity with other Maine paper mills.

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W. G. MacNAUGHTON, Secretary

Paper for Window Envelopes*

By R. E. Lofton

This paper gives an idea of the extent of the use of window envelopes, the various departments of the United States Government in 1925-1926 using approximately 65 million of these envelopes. It also emphasizes the importance of high transparency and low gloss in minimizing the eyestrain of postal employees.

Getting Data for Specifications

For the purpose of getting data on which specifications for transparency and gloss might be based, glassine papers, one-piece and two-piece envelopes and a few other semi-transparent materials were tested.

Test Data

TABLE 1
SUMMARY OF TESTS ON 17 GLASSINE PAPERS

	Weight of 500 sheets: 25 by 40 inches	Weight of 500 sheets: 24 by 36 inches	Bursting strength	Thickness	Ratio bursting strength to weight of 500 sheets 25 by 40 inches
	Pounds	Pounds	Points	Inch	Per cent
Range	8.2	7.1	4.7	0.0001	15.6
Maximum	30.6	26.5	18.5	.0010	72.8
Minimum	22.4	19.4	13.8	.0009	57.2
Average of all 17 papers	26.0	22.5	16.5	.0010	63.1

	Folding endurance: Machine	Folding endurance: Cross	Breaking strength per inch width: Machine	Breaking strength per inch width: Cross	Ash	Gloss	Opacity
	Double folds	Double folds	Lbs.	Lbs.	Per cent	Per cent	Contrast ratio
Range	113	34	6.0	2.2	0.79	11.7	0.135
Maximum	120	37	19.8	8.9	1.06	80.1	.247
Minimum	7	3	13.8	6.7	.27	68.4	.112
Average of all 17 papers	27	13	16.3	7.8	.54	75.3	.186

A limited number of windows from two-piece envelopes were tested for opacity and gloss.

The results were as follows:

	Maximum	Minimum	Average
Opacity	0.159	0.121	0.138
Gloss, per cent	78.7	62.4	74.9

* Study of the Windows of Window Envelopes for the Purpose of Developing Standard Specifications, Technologic Papers of the Bureau of Standards, No. 343 (part of Vol. 21). Price 5 cents from Superintendent of Documents, Washington, D. C.

TABLE 2
TESTS ON MATERIALS SIMILAR TO GLASSINE PAPERS

Sample	Weight of 500 sheets: 25 by 40 inches	Weight of 500 sheets: 24 by 36 inches	Bursting strength	Thickness	Ratio bursting strength to weight of 500 sheets 25 by 40 inches
	Pounds	Pounds	Points	Inch	Per cent
Bleached grease proof	26.0	22.5	15.6	0.0017	59.3
Sheet viscose, embossed	23.2	20.1	20.2	.0018	91.3
Sheet viscose, plain	21.3	18.4	25.1	.0009	117.8
Treated glassine	25.6	22.1	15.0	.0009	58.6
Impregnated white tissue	36.9	31.9	13.0	.0017	35.2

	Folding endurance: Machine	Folding endurance: Cross	Breaking strength per inch width: Machine	Breaking strength per inch width: Cross	Ash	Gloss	Opacity
	Double folds	Double folds	Lbs.	Lbs.	Per cent	Per cent	Contrast ratio
Bleached grease proof	51	14	15.7	8.6	0.74	26.5	0.391
Sheet viscose, embossed	..	..	7.5	3.0	0.80	25.0	0.070
Sheet viscose, plain	...	..	...	..	...	70.5	0.070
Treated glassine	317	32	17.5	6.0	0.41	65.8	0.088
Impregnated white tissue	183	18	17.6	7.5	0.32	69.9	0.104

The high opacity of the bleached grease proof paper precludes the possibility of its being used in the manufacture of window envelopes. The sample is from a maker of glassine papers and was included in the series for comparison with the other materials investigated.

Ideal for Transparency

The samples of sheet viscose (cellophane) referred to are included because they are almost ideal, in respect to transparency, for the covering of the aperture of the two-piece window envelope. The most noticeable difference between these two samples is that one has ribbed or embossed surfaces, whereas the other has plane surfaces. It will be noted, by referring to Table 2, that the embossing has produced a remarkable change in the character of the reflection. While more than 70 per cent of the light reflected from the plane surface was polarized, this value has been reduced to 25 per cent by embossing. The transparency of the material has not been changed appreciably, however, by the embossing process. From the standpoints of transparency and gloss, therefore, the embossed sample is an excellent material for covering

the aperture of two-piece window envelopes; its present relatively high cost, however, hinders extensive use for this purpose.

The sample of glassine paper has been given some sort of after treatment, resulting in a higher transparency than are characteristic of the ordinary glassine papers.

The sample of impregnated white tissue was made by treating white tissue paper with a solution like, or similar to, those used in making the windows of one-piece window envelopes. As compared with the average glassine paper, it is somewhat heavier and thicker. This is no doubt due to the clarifying solution with which the paper was treated. In other respects, however, this material compares favorably with glassine papers.

One-piece window envelopes are those made from a single sheet of paper in which the window is made by impregnating the area through which the address is to be read, with a suitable oil or varnish to give the paper transparency. In two-piece envelopes the envelope pattern is cut from an opaque sheet of paper, the window is then cut out and subsequently covered with window material, usually glassine paper or sheet viscose (cellophane).

TABLE 3
SUMMARY OF TESTS ON ONE-PIECE WINDOW ENVELOPES

	Weight per 500 [1] sheets		Gloss [2]			
	25 by 40 inches	17 by 22 inches	Paper	Window	Opacity of window	Transparency per pound 25 by 40, 500 by 100
	Pounds	Pounds	Per cent	Per cent	Contrast ratio	
Range	33.9	12.6	11.8	10.2	0.088	0.76
Maximum ...	84.6	31.6	78.3	87.7	.229	1.67
Minimum	50.7	19.0	66.5	77.5	.141	.91
Average	64.3	24.1	73.1	84.1	.183	1.30

[1] The weight per ream refers to the untreated paper from the envelopes.
[2] The gloss determinations were made on both the untreated and the treated portions of the envelopes, because it seemed probable that the amount of polarized light reflected by the windows was dependent to a considerable degree upon that reflected by the untreated parts of the envelopes.

Quality Specifications Recommended for Windows of Window Envelopes

There are two reasons why it is impractical to draft one specification to include both the one-piece type and the two-piece type of envelope. In the first place, the windows of the two types are made of different materials, and the glarimeter is not well adapted for measuring the comparative gloss of the surfaces of different materials. In the second place, the two types of windows were found to differ considerably in transparency. A specification for transparency suitable for the two-piece type would exclude the one-piece type; and a specification for transparency suitable for one-piece type would permit the use of two-piece windows much inferior to those being used today. In order, therefore, to give specifications that would, if generally adopted, maintain the present quality of both types of windows, it was necessary to write a different specification for each type.

The suggested specifications are meant to serve as a guide to the manufacturer in his efforts to produce window envelopes of satisfactory quality. The following specifications are merely suggestions, and nothing contained in this article shall be interpreted as interfering in any way with the authority of the Post Office Department to deal as it sees fit with any problem relating to the use of window envelopes in the mails, as this is a function of that office alone.

The suggested specifications follow:

1. Requirements

ONE-PIECE ENVELOPES

Opacity.—The contrast ratio shall be not more than 0.25. Opacity shall be determined on windows that are not less than five days old.

Gloss.—The gloss shall be not more than 90 per cent.

Bursting strength.—Shall be not less than that of the body of the envelope.

Impregnating material.—Shall not spread excessively after application.

TWO-PIECE ENVELOPES

Opacity.—The contrast ratio shall be not more than 0.20.

Gloss.—The gloss shall be not more than 80 per cent.

Bursting strength.—Shall average not less than 12 points.

Adhesion.—The window must adhere firmly and uniformly to the body of the envelope under the ordinary conditions of usage.

Sampling and Testing

The test samples shall consist of at least 20 envelopes so selected as to be representative of the entire lot. They shall be kept flat and free from folds, wrinkles, dirt, etc., during transmission to the testing laboratory.

Opacity tests shall be made by means of the apparatus described in Bureau of Standards Circular No. 63. Tests shall be made upon six individual windows, and the average results computed to "contrast ratio," as described in Circular No. 63. The time clause respecting this determination is to insure reasonable permanence of transparency.

Gloss tests shall be made with the glarimeter. All tests shall be made on that surface of the window which is part of the outside surface of the finished envelope. In making the tests, a sufficient number of the windows shall be stacked one upon another, with outside surfaces up, to prevent any light from passing through the stack and reaching the holder of the glarimeter. For this purpose, it will be sufficient to take twice the number of windows required to make invisible heavy black printing on a white surface when the windows are stacked over the printing. Tests shall be made on not less than 10 separate windows, and the average shall be reported as per cent gloss.

Bursting strength tests shall be made by the official method of the Technical Association of the Pulp and Paper Industry.

Pulp Quality From Sapwood and Heartwood

SPECIAL INQUIRY No. 87

A member who uses pine both as slabs and round wood for chemical pulp wishes to get the experience of others who have made a study of the quality and yield of pulp obtained from these two kinds of wood.

Although many kraft paper mills making pulp from round wood are making paper of a point per pound and more there seems to be a question if pulp made from slabs will produce paper of equal strength even under a modified cooking operation.

According to Lee in paragraph 19 of section 1, Volume III, Manufacture of Pulp and Paper, the average length of fiber in the sapwood is materially greater than in the heartwood but no data are given of the fiber strength.

A discussion of the question is asked with data of experimental or plant results with references to the literature bearing on the subject.

Under the Service to Members plan a transcript of the responses will be sent to those who contribute to the inquiry. Send answers to

WM. G. MACNAUGHTON, Sec. TAPPI,
18 East 41st street, New York.

Wavy Paper

SPECIAL INQUIRY No. 84

A member wants to know:

Causes of and control for waving in sulphite bond paper; what effect has condition of bleached sulphite, alum, size, amount of beating and jordaning, moisture in the paper, temperature and humidity of cutter room and store room, method of wrapping and tub sizing.

Those replying will receive a copy of the finished report.

Please address responses to

W. G. MACNAUGHTON, Sec. TAPPI,
18 East 41st street, New York.

The Marcy Rod Mill in the Paper Industry

By Sidney D. Wells *

In January, 1924, the Marcy rod mill was tried out on a batch of half digested wood chips submitted by the Forest Products Laboratory of Madison, Wisconsin. The results were such that the work has since been carried out on an increasingly larger scale to the extent that it now appears that a considerable proportion of the work of beating and pulping in the paper industry will eventually be carried out by this means. A recent installation was started in operation at the plant of the Paraffine Companies, Inc., at Port Angeles, Washington, in May, and the performance of this unit is worthy of attention. Before going into these details, however, it will greatly facilitate the understanding of the points to be brought out if a description of the essential features of the Marcy rod mill is first given.

Figures 1 and 2 show exterior views of a 5 by 10 foot Marcy rod mill[1] built for paper mill work. This size of mill is mounted on a trunnion at each end. The inlet trunnion is relatively small in diameter as compared to the diameter of the rod mill and is provided with suitable means for feeding the material to be treated into the mill. The outlet trunnion, however, is much larger in diameter so that the material after it has been properly treated finds ready egress from the mill. By means of the large outlet there is very little material backed up in the mill and the level of the material therein is so low that there is practically no buoyant effect exerted upon the rods.

Figure 3 shows an interior view of a typical Marcy rod mill and illustrates the action of the rods therein when in operation. On account of the large outlet the Marcy rod mill is provided with a splash door which prevents the rods from working out of the mill and the splashing out of the material that is being treated. The splash door is mounted on a suitable swinging bracket arrangement in the manner of the door of a modern vault which makes it possible to open the door at any time during the operation of the mill in order to observe the operating conditions and also the condition of the grinding medium or lining. This arrangement is also very convenient for replacing rods as they are worn out and portions of the lining that may need attention. In addition to the features mentioned above, the interior surfaces of

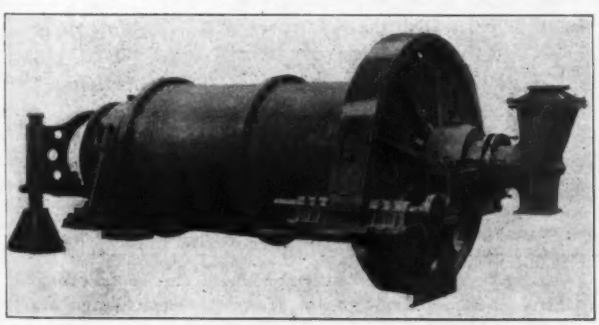


FIG. 1
Inlet and Driving End of Marcy Rod Mill.

the ends of the mill are slightly conical in shape. This feature provides what is called an internal feed pocket and makes it possible to feed large amounts of material into the spaces between the rods without any obstruction. Without the internal feed pocket much of the material would reach a considerable distance into the mill before it worked between the rods and received its proper treatment. This would produce uneven grinding and nonuniform product. The same advantages possessed by the internal feed pocket are also a feature of the conical shape of the interior surface of the discharge end. It enables the prepared material to emerge freely from between the rods and pass out of the outlet without any restriction whatever. The metal lining of the Marcy rod mill is mounted with a wood backing which absorbs the shock produced by the falling rods and reduces to a very large extent the noise of operation. When stainless steel lining is used the wood backing completely separates the shell from the contents of the mill and prevents, thereby, contamination with iron.

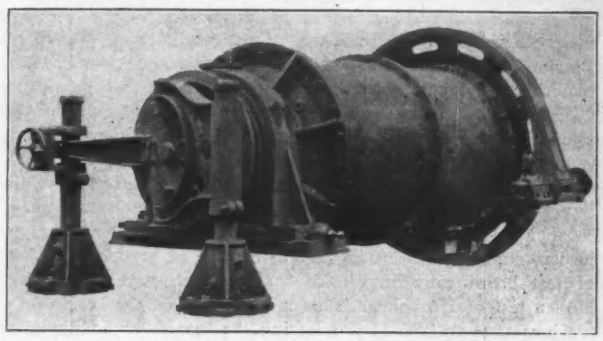


FIG. 2
Discharge End of Marcy Rod Mill.

The mill at Port Angeles was of 5 by 10 foot dimensions, provided with a manganese steel lining backed with wood and charged with 3 inch and 2½ inch high carbon steel rods 10 feet long. The mill was driven by a 100 hp. super-synchronous motor. The mill was run at a speed of between 17 and 18 revolutions per minute and it was operated on unbleached hemlock sulphite supplied by two pneumatic stock thickeners which supplied stock at a

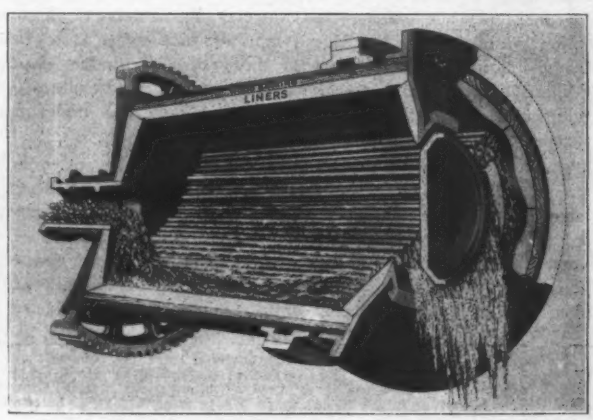


FIG. 3
Interior View of Marcy Rod Mill.

consistency of about 4½ per cent. Various weights of rod charge were used, but it was finally found that a rod charge of between 13 and 15 tons gave the maximum output and did not show any signs of cutting the fibers. A feed of 35 tons of pulp per day was first tried but it was found that at this rate the degree of beating given the pulp was not sufficient for the purpose desired and the rate of feed was finally reduced to 17 tons per day. The consistency of the stock entering the mill was found to have a vital influence on the quality of the product and also on the amount of beating. Strength tests were made on the pulp obtained

* Director Paper Mill Laboratories, Inc., Quincy, Ill.
[1] Built by Mine and Smelter Supply Co., Denver, Colo.

from the rod mill at various consistencies an dit was found that when operating at a rate of 17 tons of pulp per day the following strength figures were obtained:

TABLE 1

EFFECT OF CONSISTENCY ON BEATING BY ROD MILL

Marcy 5 x 10 feet rod mill

Consistency of pulp 17 tons fed per 24 hrs. per cent	Mullen test strength factor points per pound
4.25	0.514
4.5	.502
6.34	.542
7.32	.607
8.55	.606
9.29	.579

It is evident from the above that the most desirable consistency for operation is between 7½ and 8½ per cent. The strength factor of the stock before it entered the rod mill was 0.385. The increase in test of 17 tons of pulp per day from 0.385 to 0.607 was accomplished in the rod mill with the expenditure of only 70 hp. Previous work at the plant had shown that two 1,000-pound beaters requiring 100 hp. raised the test of this quantity of pulp from 0.385 to 0.460. The subsequent passage of the beater pulp through a jordan taking 100 hp. raised the test to 0.575. It is consequently apparent that the rod mill with the consumption of only 70 hp. is capable of performing a slightly greater beating effect than the beater-jordan combination requiring a power consumption of 200 hp. The combination of the rod mill, two beaters and one jordan, requiring 245 hp. in all, was capable of producing a sheet of test board calipering 0.01375 inch, which gave an average Mullen test of 156 points. This is equivalent on the basis of the previous tests to 0.88. By operating the beaters on a Sunday it was found that it would be necessary to use ten 1,000-pound beaters requiring 500 hp. and one jordan requiring 75 hp. to produce a board of equal strength at the rate of 17 tons per day. It is evident from the above that the use of the rod mill will make possible savings in power of from 50 to 70 per cent over present methods with the standard type of beater and jordan.

In the operation of the mill at Port Angeles it was found that under average operating conditions there was sufficient cooking acid in the washed unbleached pulp to cause some discoloration in its passage through the rod mill. When operating continuously at a consistency above 7 per cent, however, the amount of discoloration was considerably reduced and was not sufficient to cause complaint in the manufacture of the grades of product desired. Where discoloration is objectionable it is entirely feasible to provide mills with stainless steel lining and rods, and under such conditions discoloration is entirely avoided.

In connection with the application of the Marcy rod mill to paper making problems in general, the various sizes of mills available are of interest as well as the operating conditions, power consumption and output for various types of product. The following table (Table 2) is offered to give this information and with it is provided a key for interpreting the output of the mill when operating on various materials or to produce various products.

TABLE 2

Size of Mill	Speed of Mill	Horse Power	Rod Charge	Output of mill, per 24 hours, degrees of beating as measured by minutes in standard pebble test				On Ground Screenings
				10	30	60	100	
Feet	R.P.M.	H.P.	Tons	Tons	Tons	Tons	Tons	Tons
3'x6'	25	15	2.5	2	1.2	0.7	0.5	0.3
4'x8'	20	38	7	16	7	4	3	2
4'x10'	20	42	9	20	8.5	5	3.5	2
5'x10'	16	70	14	40	17	10	7	5
5'x12'	16	84	17	48	20	12	8.5	6
6'x12'	14	110	24	68	28	17	12	8.5
6'x14'	14	128	28	80	34	20	14	10
7'x15'	12.5	160	38	120	50	30	21	15

The amounts of beating as expressed in minutes in the pebble mill are given below (Table 3) for various types of product on the assumption that all the beating is done in the rod mill and the jordan is used solely for breaking up clots or lumps and to shorten the fiber to the degree necessary.

From the preceding table (Table 2) it is evident that the rod mill is capable of application to a great variety of uses in the paper industry. It is capable of pulping, beating, grinding and refining, and it can be used to advantage to supplement or supplant the equipment usually used to carry on any of these operations. It is a much more rugged machine than any heretofore used for the purpose and parts subject to wear can be replaced in a matter of minutes where it is usually a matter of days with beaters and refiners. It is furthermore not subject to breakage from foreign material entering the mill and in every way it shows marked advantages over the devices commonly used in the industry.

TABLE 3

AVERAGE BEATING IN PEBBLE MILL REQUIRED FOR VARIOUS TYPES OF PRODUCT

Book paper, English finish	10 minutes
Book paper, lithograph	20 minutes
Ordinary sulphite wrapping	20 minutes
Strong sulphite wrapping	30 minutes
Semi parchment	60 minutes
Full parchment	100 minutes
Ordinary kraft	40 minutes
Extra strong kraft	80 minutes
Sulphite, sulphate, or soda screenings	40 minutes
Straw, lime cooked	20 minutes
Chemically softened wood chips	40 minutes

Shipping By Water To Kalamazoo Valley

SOUTH HAVEN, Mich., October 24, 1927.—With the arrival of the SS. *Wenchita*, laden with 1441 tons of china coating clay and the expedient discharge of the cargo, an increased interest has been manifested in the direct water route for material shipped to the Kalamazoo Valley. Slightly over twice the volume of tonnage was received in the local port this year over that of last year and additional importers have used South Haven as an unloading point for the first time this year.

Captain Ugelstead, Master of the *Wenchita*, had expected to be in South Haven about three days longer than was necessary, the Lake Michigan Stevedore Company who handled the discharge of the cargo, having completed the unloading in record time.

A great deal of interest in the shipping of wood pulp and pulpwood as well as china clay is being shown by importers but in the past the lack of warehouse facilities has been an impediment to this movement. However, local interests are now planning on the construction of a suitable warehouse to accommodate either of the materials, which will no doubt be erected late this fall or early in the spring. With the warehouse facilities, it is expected that several importers who have been negotiating for shipping into South Haven will charter their cargoes directly to this port which is but 39 miles from the Kalamazoo mills.

Recent Paper Decisions

During the summer, though the United States Customs Court has not been in session, justices trying paper cases have handed down many decisions involving imported paper. In practically all of the cases decided the Government was assisted by the Import Committee of the American Paper Industry with evidence and witnesses to sustain the action previously taken by appraisers at the various ports.

Among the decisions recently announced are the following:

Fourteen importations of rotogravure paper imported at New Orleans, Boston and Norfolk were held to have been undervalued.

Wrapping, manifold, book, hanging and fancy papers imported at Boston, New York, and Galveston held to have been undervalued.

In addition to these court decisions, the Treasury Department has handed down an important ruling involving cover paper, instructing appraisers to classify such paper as paper not specially provided for at 30 per cent. Importers claims were varied, some claiming it to be dutiable as printing paper at ¼ cent per pound and 10 per cent, and others as board at 10 per cent. The Treasury Department ruling was in conformity with the position taken by the Import Committee, on the advice of the cover paper manufacturers.

New Jersey Studies Paper Wastes*

Investigation[1] of the Recirculation and Treatment of Waste Waters from The Process of Making Paper Board

Introduction[2]

There are at least thirty-eight paper mills in New Jersey, and several new mills are about to be constructed. The pollution of the fresh waters of this State by waste waters from the process of paper making has been a serious problem for over a decade. Many types of treatment for these wastes have been studied by representatives of the Department, singly or jointly with consulting engineers and representatives of the paper mill owners, but in no instance in this State were any of the treatments studied found to be entirely successful.

The recirculation and reuse of the waste waters, commonly called the closed system, received attention, and some of the paper manufacturers in the State were urged to practice this method to keep the wastes out of the streams. Mill owners have given the practice a trial but without exception have protested against its continued use. They claim that the circulating water sours, that slime is produced, and that the process of paper making is seriously handicapped. Some of the mills are now using part of their waste waters over again, but we know of no paper-making concern in the State that is not discharging some wastes into a stream. It was, therefore, of considerable interest to us to learn that in another state there is a mill manufacturing chip and news-boards, and building and wrapping paper, which for months has been operating under a closed system; that is, using all of the waste waters over again in their process of paper manufacturing.

In April, 1927, an application to establish a building-board mill upon one of the sheds, the waters of which are used for potable purposes, was considered by the members of the New Jersey State Department of Health. The application was filed in accordance with the requirements of the law.[3] The proposed method of treating the waste waters was described by the applicant as filtration. It is presumed that filtration was to be obtained by fine screening. The application was denied on April 5, 1927, and at the same meeting the members of the Department authorized representatives of its Bureau of Engineering to study the mill, located in another state, where stream pollution was so effectively controlled. Permission to inspect the plant was granted by the officials of the company.

* A report submitted to the members of the New Jersey State Department of Health, July, 1927, for their consideration in the establishment of a policy controlling the discharge of industrial wastes from paper mills. (Abstracted.)

[1] By I. R. Riker, senior sanitary engineer, in charge; C. W. Sparmaker, special investigator; and F. E. Whitehead, sanitary chemist, Bureau of Engineering, New Jersey State Department of Health.

[2] By H. P. Croft, chief engineer, New Jersey State Department of Health.

[3] Chapter 280, P. L. 1921, entitled, "An Act providing that factories, workshops or places for the manufacture of materials or goods, hereafter established within the watershed of streams above the point at which public supplies of potable water are taken, shall obtain from the Department of Health of the State of New Jersey, a permit to locate or establish such factories, workshops, or places."

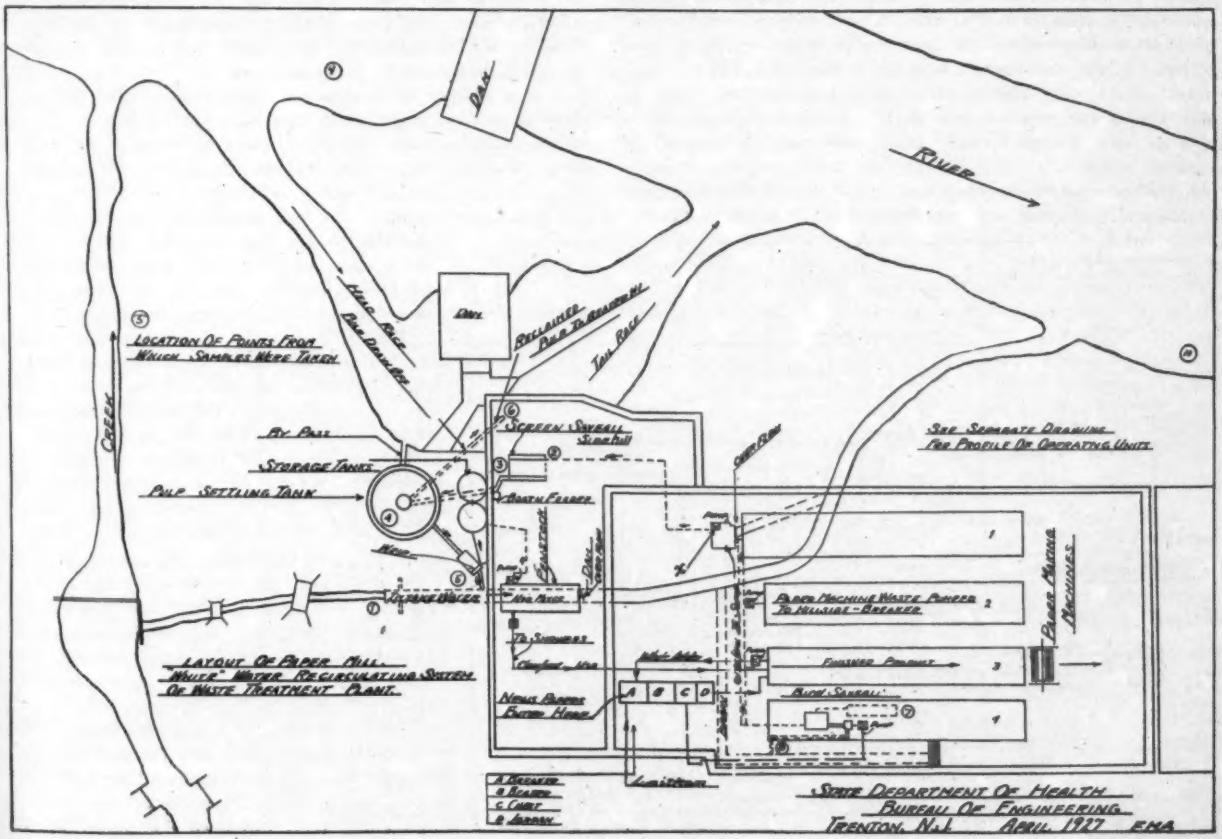

RIVER
DAM
LOCATION OF POINTS FROM WHICH SAMPLES WERE TAKEN
CREEK
STORAGE TANKS
PULP SETTLING TANK
SCREEN SHEARS
SEE SEPARATE DRAWING FOR PROFILE OF OPERATING UNITS
LAYOUT OF PAPER MILL "WHITE" WATER RECIRCULATING SYSTEM OF WASTE TREATMENT PLANT
STATE DEPARTMENT OF HEALTH
BUREAU OF ENGINEERING
TRENTON, N.J. APRIL 1927 EHA

FIG. 1
LAYOUT OF PAPER BOARD PLANT

Report of Investigation

That the pollution of the waters of this State by wastes from paper mills is an increasingly serious one is indicated by the conditions on one of the rivers in New Jersey, a stream tributary to a potable water supply, where paper mills are discharging 10,000 gallons of wastes per ton capacity of mill. The average capacity of the mills on this stream is 300 tons of finished product daily. Comparing the solids, oxygen demand, and bacteria of the above industrial wastes to raw domestic sewage, it is estimated that in these constituents the trade wastes are equivalent in polluting matter to a population of 65,000 discharging raw sewage daily into the stream. The population of the watershed of this river is only 18,000. There is one mill discharging over one million gallons of such wastes, which when analyzed by the Bureau of Chemistry contained over 150 parts per million of suspended matter, had an oxygen demand requirement of 157 parts per million, and eight million 37 deg. C. bacterial colonies per cubic centimeter.

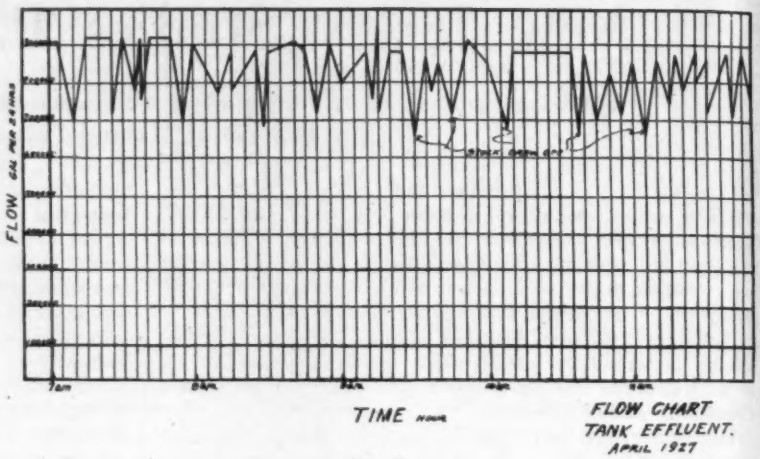


FIG. 3

The investigation, authorized by the Department of Health, was carried on in the field from April 18 to 21 inclusive, and the procedures, methods, and analyses were similar to those used by the Bureau of Engineering in its investigation of sewage treatment plants. The mill investigated is located between a creek and a river. The creek is a small stream with an average flow of one million gallons per 24 hours, which receives the wash water from a filtration plant. The river is a larger stream, having a flow of 150 million gallons per 24 hours, and receives considerable trade wastes, as is evidenced by its appearance above the mill. The water of the creek is used as fresh water make-up in the process of paper making; the river is used for water power and has received in the past trade wastes from the mill. The company manufactures chip and news boards, building and wrapping papers. Its raw product is news and other waste papers, containing much foreign matter. Small amounts of new pulp are used occasionally.

At the time of our investigation one of the paper-making machines was producing building sheathing. There are four machines: two fourdriniers, specified as Nos. 2 and 3, and two cylinders specified as Nos. 1 and 4. The average capacities of the four machines are as follows:

Machines	Tons of finished product per day
1	15
2	15
3	26
4	55
Total	111

Description of the Processes

The raw material is obtained from all sections of the country. The material is placed in a breaker-beater and the temperature raised by means of exhaust steam to between 158 and 185 degrees F. From the breaker-beaters the mixture passes to standard beaters where the raw material is defibered. The temperature in this mixture is slightly less than in the breakers, 122 to 158 degrees F. Broke is added directly to the standard beaters. From the breakers the coarse stock is discharged into a chest which serves as a storage tank for the jordans through which the stock is pumped for grinding. It is then stored in another chest preliminary to screening. Screening is the final process before the stock is delivered to the paper-making machine. The diluted stock is applied to the paper machine wire and cylinder molds which retain all but a small percentage of it. The remaining stock, with a large percentage of water, known as white water, is either circulated directly or passes to the pit. After the stock has assumed its form on the wire, it is picked up by the felt and then passed on to the driers. The felt is given several showers to remove the stock which clings to it. The water from the felt showers as well as the white water from the wires runs to a pit located beneath each machine.

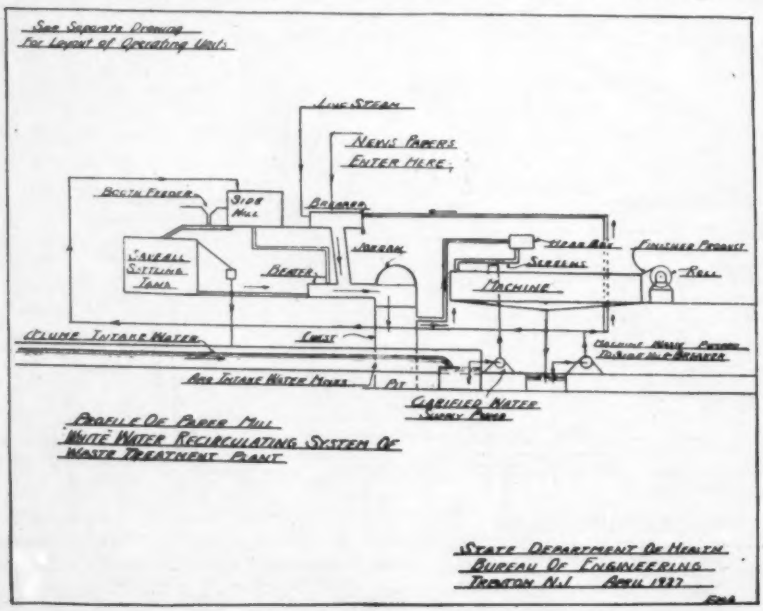


FIG. 2
PLAN OF PAPER MILL

Recirculating Systems

There are two separate recirculating systems. One system includes the chemical precipitation treatment of the white water and the reuse of the white water in the felt showers, and the other system is one whereby white water from the pits is returned to the breakers or beaters directly. Plan (Fig. 1) and profiles (Fig. 2) of these systems accompany this report. The plan also indicates the general layout of the mill. The temperature of the white water in the pit is 104 degrees F. It is estimated that about 700,000 gallons of white water is returned to the breaker and beaters. What the beaters cannot use

through the above recirculating system overflows from the pits to a drain which carries such overflows from all machines to a sump or pump pit indicated by (X) on the plan (Fig. 1). This sump has an overflow which discharges into the river. When such an overflow occurs an alarm is sounded. A pump in the pit with 600 gallons per minute capacity lifts the white water to the second recirculating system, the first unit of which is a screen side hill saveall. The size of the screening surfaces of this saveall is 24 ft. by 7 ft. 6 in. When the pump was first placed in operation, considerable trouble was encountered due to air being drawn into the suction pipe and forced into the settling tank. This air caused fiber to float on the surface of the tank. This difficulty was overcome by means of a valve attached to a float in the pit, so that when the level of white water in the pit is lowered to a few inches above the suction the water is circulated back to the pit until the level in the pit rises sufficiently to close the valve and send all the water to the side hill saveall.

After passing through the saveall the white water is carried through a weir box and pipe to the center of a large settling tank. The white water is dosed with Boothal, a special coagulant, by means of a dry feed apparatus. The settling tank is 30 ft. in diameter by 12 ft. deep, and gives a theoretical detention period of 2¼ hours. The white water enters the center of the tank and passes downward to within 4 ft. of the bottom, then upward in a radial direction to a collecting launder located on the outer rim. There is a slowly moving mechanical arm in the bottom of the tank operating at a velocity of three revolutions per hour which scrapes the thickened stock toward the center of the tank. The bottom of the tank slopes slightly toward the center. The stock is then drawn off to the beaters. The clarified white water passes from the launder to a weir box where it is measured by means of a recording gage. This gage indicates the rate of flow from the tank for the entire 24 hours. A chart (Fig. 3) accompanying this report gives a fair example of the variation in flow for 5 hours of the first day of our investigation. The lowest points on the curve indicate when stock was drawn from the bottom of the tank to beater No. 1, whereas the other variations are the natural variations in the flow to the tank. From the weir box the clarified white water enters the penstock and mixes with fresh make-up water from the creek. This combination of the two waters, estimated to be about one million gallons per 24 hours, is pumped to the showers ordinarily supplied with fresh water. There are two storage tanks in this line, each of which has a capacity of 10,000 gallons. They serve as balance tanks.

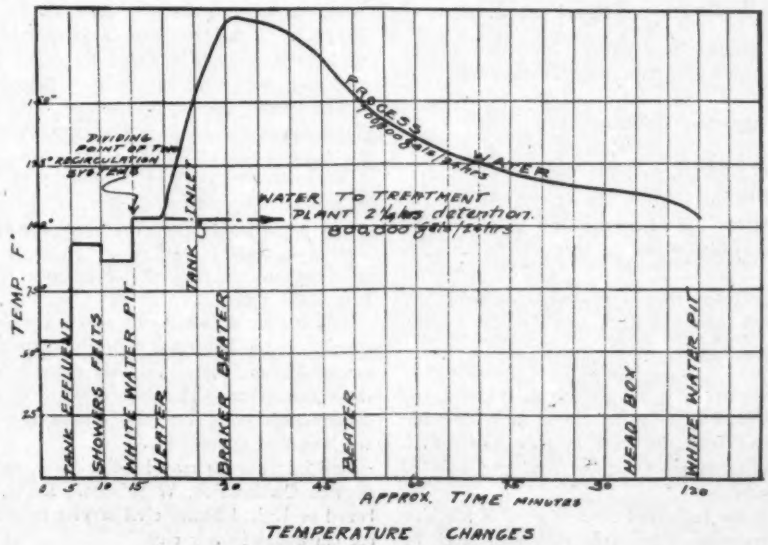
Most of the white water from machine No. 4 is passed through a Bird saveall, and thence pumped back into the recirculating systems. This saveall is used because the main recirculating pump and settling tank are not of sufficient capacity to handle all of the white water. At the time of our investigation the pump which ordinarily pumps the white water from machine No. 4 was out of order, so that the white water from this machine was being screened by the Bird saveall and then discharged into a drain which carried it to the river. The amount of these wastes was estimated to be 175,000 gallons in every twenty-four hours.

Note.—Since this investigation was made, we are advised that, with the adoption of the recent practice of reusing all white water, for long periods it is unnecessary to pollute the creek with this water. It is understood that the total mill requirement, including boiler feed water, toilets, etc., amounts to approximately 100,000 gallons daily or less than 900 gallons per ton of product. Evaporation losses at the paper machine driers account for nearly all of this water.

Effect of Recirculated Water

A careful check upon the operation of the settling tank and chemical precipitation process indicated that the coagulant was being added at the rate of 700 pounds per 24 hours, which is equivalent to six grains per gallon or 0.87 pounds per 1,000 gallons. Boothal is a balanced coagulant consisting of aluminum sulphate and calcium carbonate in the proportion of 55 to 45. It is added at the entrance of the tank between the side hill saveall and the settling tank. The thickened stock is not drawn continuously from the bottom of the tank as is usually the case with such machines, but it is drawn off about every half hour to beater No. 1 and is fed only to machine No. 1. Officials of the company claim that machine No. 1 will make 15 tons of paper using only 12 tons of raw stock, indicating that three tons, or 20 per cent, of the raw material used in this machine consists of reclaimed stock. Officials further assert that they find the quality of the paper is not adversely affected by the use of this reclaimed stock. This is directly opposed to the testimony of those who have often stated that such material cannot be used satisfactorily. It should be noted that, at the end of the week's run, before shutting down care is taken to wash all the accumulated stock from the sides and bottom of the pits and tank. A small quantity of lime is very often dumped into the top of the settling tank.

The stock reclaimed from the tank had no odor and there was no scum on the surface. The superintendent of the mill stated that when the settling tank was first installed no chemical coagulant was used, but the effluent was so full of slime that it was practically impossible to use the white water on the showers. Alum was then used with varying degrees of success, but since a balanced coagulant has been used there has been no appearance of slime in the recirculating system. All such material is now precipitated and returned to the stock in machine No. 1 before decomposition sets in. The operator also informed us that they are running their machines faster than ever. The life of the felts has not been shortened by the use of white water in the showers. The mill superintendent made the statement that he would be loath to return to the open system now that he has found such a great success with the closed system.



TEMPERATURE CHANGES

Fig. 4

Results of Analyses

The waste entering the chemical precipitation process indicated the presence of 432 parts per million of suspended matter—3.58 pounds per 1,000 gallons of stock. Clarified effluent (temperature 94 degrees F.) from the tank contained 77 parts per million of suspended matter, or 0.63 pounds per 1,000

gallons. The quantity of this water is estimated to be close to 800,000 gallons daily. It was necessary to use 275,000 gallons of fresh make-up water per 24 hours at a temperature of 57 degrees F. This water contained 10 parts per million of suspended matter. A combination of these two waters indicating 59 parts per million of suspended matter or 0.46 pounds per 1,000 gallons of stock was used for the showers. It is interesting to note that the clarified effluent has been used with a very small percentage of make-up water. However, at the time of our investigation a greater quantity of fresh make up water was being used due to the fact that the waste water from machine No. 4 was not being recirculated. The chemical precipitation process in the recirculation system indicated a percentage removal of 82.

Marked Effect Upon River

The effluent from the Bird saveall contained 242 parts per million, or two pounds per 1,000 gallons. The waste from this saveall seemed to have a marked effect upon the river, increasing the oxygen demand from 8.6 parts per million above to 11.97 parts per million below, and the oxygen consumed from 4.4 to 21.

The fresh make-up water of the creek receiving, as it does, the filter wash-water from a water filtration plant, indicated pollution as seen by the number of 37°C. bacterial colonies—an average of 277,125 per cubic centimeter—and the number of *B. coli* —52 per cubic centimeter. The oxygen demand and oxygen consumption of the creek water indicated less pollution, being 4.27 parts per million and 1.3 parts per million. The clarified white water effluent from the settling tank contained an average of 229,550 colonies per cubic centimeter, slightly less than the number found in the creek, but the oxygen demand and oxygen consumed were much greater, being 60 parts per million and 312 parts per million, respectively. This same material indicated a relative stability of 50 per cent on three days. The number of 20° bacteria in the effluent from the settling tank was 854,750 per cubic centimeter against 18,500 per cubic centimeter in the creek. The analyses indicate little change in the white water before and after chemical precipitation treatment, but we doubt if the removal of the colloidal, or slime forming, material could be shown by any such analyses as are ordinarily made. The analyses, however, do show a reduction in all other respects.

Cover a Period of Several Years

The successive steps taken in perfecting a process of recirculating the white water in a closed system cover a period of several years, in which piping and pumps have been changed and rechanged. The treatment of the white paper has been changed from time to time; screens, savealls, plain settling tanks, chemical precipitation, and a combination of screens and chemical precipitation have been used in turn. There is still room for improvement, but the fact remains that under usual operation the wastes are being kept out of the stream, thus eliminating stream pollution.

Summary and Conclusions

1. All the waste white water from machines No. 1, 2, and 3 was being re-used in the process of manufacture.

2. The greater portion of the waste white water from machine No. 4 was being screened by a Bird saveall and by-passed into the river (but this waste white water is normally used in the process).

3. The river was not affected from a physical standpoint, but analyses indicated a marked change in the water above and below the mill.

4. The waste white water is being treated by a chemical precipitation process which removes the slime-forming material and makes the water entirely fit for re-use in the showers in combination with make-up water from the creek at a ratio of 3 to 1.

5. The chemical precipitation plant removed 82 per cent of the stock in the white water.

6. The major portion of the reclaimed stock is used in machine No. 1, making the raw material 20 per cent reclaimed stock or 15 tons of finished material from 12 tons of old newspaper stock.

7. The clarified white water contained 0.63 pounds of stock per 1,000 gallons, and oxygen demand of 60 parts per million, and a relative stability of 50 per cent. The creek showed an oxygen demand of 4.27 parts per million.

8. Temperature of the creek, 57 degrees F.; temperature of white water pumped to breaker beaters, 104 degrees F.; temperature of clarified white water, 91 degrees F.; temperature of mixture in beaters, 170 degrees F., all of which indicates a conservation of heat units. (Fig. 4.)

Rayon Industry Possible at Bellingham

SEATTLE, Wash., October 14, 1927.—What may possibly bring about the realization of the rayon industry in the northwest, at Bellingham, Wash., is foreseen in the visit of J. J. Donovan, large lumber manufacturer of the latter city, to New York and the east at this time.

Mr. Donovan, managerial head of the firm of Bloedel & Donovan, operates one of the largest lumber manufacturing plants in the world at Bellingham. Their product is fir, spruce and hemlock lumber and the waste wood represents an enormous factor for conversion into pulp; to salvage the major portion of this waste, they contracted with the San Juan Pulp Manufacturing Co., which is located adjacent to their mills and for over a year the pulp concern has been kept busy working up this waste as well as the waste from two other lumber mills nearby.

Recently, the plans for adding a pulp manufacturing plant to the Bloedel & Donovan mills have resulted in that concern securing from the city of Bellingham necessary concessions, such as water supply and tide land easements that indicated a large proposed operation for the manufacture of pulp. The present somewhat vague announcement from the east that Mr. Donovan is in conference with large rayon manufacturers, lends added interest to the former announcement as made by that company.

It is reported that Mr. Donovan consulted with a rayon manufacturing expert who was out to the Coast and subsequently visited these people at their eastern offices, where he now is.

Preliminary work is going on in making ready for the construction of a pulp division of the Bloedel & Donovan Company. The capacity of this mill will not be less than 100 tons daily, it is outlined. Just how these later developments will affect their plans, undoubtedly will be announced upon the return of Mr. Donovan from the east.

Examination for Assistant Paper Technologist

Applications for assistant scientific aid qual'fied in paper technology must be on file with the Civil Service Commission at Washington, D. C., not later than November 12. The date for assembling of competitors will be stated on their admission cards and will be about ten days after the close of receipt of applications.

The examination is to fill vacancies in the Departmental Service, Washington, D. C., including the Bureau of Standards, and in positions requiring similar qualifications.

The entrance salary in the District of Columbia is $1,500 a year. A probationary period of six months is required; advancement after that depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions. For appointment to the field service the entrance salary will be approximately the same.

The Bureau of Standards covers a wide field of work in physics, chemistry, and industrial technology, including research and standardization, and offers valuable experience to those prepairng for these professions. The opportunities for research are excellent, although experimental testing usually forms the major part of the work of new appointees.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of United States civil service examiners at the post office or custom house in any city.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Lignin

Gelatinization of Lignocellulose. III. The Viscose Reaction. A. W. Schorger. Ind. Eng. Chem. 19, 226-227 (Feb., 1927). By means of the viscose reaction and simultaneous grinding, approximately 82 per cent of aspen wood and 70 per cent of white pine wood were dissolved. The lignin of white pine was more soluble than that of aspen. Cellulose is more easily removable from hydrolyzed than from the original wood. In no case were the carbohydrates separated completely from the lignin. Of the latter, a large part passed into solution with the carbohydrates.—A. P.-C.

Theories of Lignin Formation. Anon. Papierfabr. 24, 713-714 (Nov. 14, 1926). According to W. Fuchs, lignin is differentiated from other plant tissue constituents by containing methanol, by not being converted to sugar, and by yielding easily soluble sulphonic acids with calcium bisulphite. Lignin contains more than 60 per cent carbon, which is considerably more than the carbohydrates possess, and must therefore be a substance of marked unsaturated character, similar to aromatic compounds. It is easily destroyed by oxidation but offers a greater resistance to the attack of bacteria than the carbohydrates. In the formation of lignin, pectin-like substances and other polysaccharides split off hydrogen peroxide with the aid of plant enzymes to form glucal complexes which are similar, constitutionally, to lignin.—J. L. P.

Lignin. T. Lieser. Cellulosechemie 7, 156-160 (Nov. 7, 1926). The isolation of lignin by chemical and biochemical methods is critically reviewed. By using physiological processes it is to be expected that pronounced changes will not occur, such as polymerization, etc., which usually accompany drastic chemical changes.—J. L. P.

Occurrence and Transformation of Lignin in the Plant Kingdom. Klein. Zellstoff U. Papier 6, 392-393 (Sept., 1926). A review of a recently published article by S. Odèn. For abstract see C. A. 20, 3179 (1926).—J. L. P.

Sulphite Process

Alkalies as Bases for Sulphite Cooking Acid. J. Hausen. Papierfabr. 24, 691-695 (Nov. 7); 709-713 (Nov. 14); 722-728 (Nov. 21, 1926); Paper Ind. 8, 1914a-1914h, 1917 (Feb., 1927); Paper Trade J. 84, No. 9, 51-60 (Mar. 3, 1927). A comprehensive review of the literature on the use of the alkali metals as the basic constituents of sulphite pulp cooking acid. The subject is discussed under the following headings: 1. acid cooking processes with alkalies as bases, 2. processes utilizing weak acid, alkaline, or neutral alkali sulphites, and 3. processes utilizing liquors containing mixed bases. 61 references are listed.—J. L. P.

Regulation of the Lime Content of Sulphite Liquors with a Simultaneous Production of By-Products. Metallbank and Metallurgische Ges. Ger. pat. 437,531. Papierfabr. 24, 792 (Dec. 12, 1926). Waste gases from sulphite pulp mills are passed through towers filled with limestone in which the water spray is cooled to a low temperature so that the volatile constituents, such as cymene, are separated. The gases containing sulphur dioxide are absorbed by the cooled water. Cymene separation occurs in the storage tank.—J. L. P.

The Roasting of Pyrites. Anon. Zellstoff U. Papier 6, 394-395 (Sept., 1926). An abstract of an address by G. F. Huettig on processes for roasting pyrites.—J. L. P.

Sulphite Liquors for the Cooking of Woods Rich in Resin. J. Hausen. Wochbl. Papierfabr. 57, 1421-1425 (Dec. 18, 1926). Recent researches, including those of Keebra, Alfthan and Serlachius, Sieber, and Schwalbe, dealing with the adaptation of the sulphite digestion process to the pulping of woods rich in resin, are briefly reviewed.—J. L. P.

Pulp and Paper Manufacturing Process. L. Bradley and E. P. McKeefe. Can. pat. 268,181, Aug. 3, 1926. Wood pulp is produced by cooking wood under pressure and at an elevated temperature with alkali-sulphite cooking liquor containing a high concentration of alkali sulphite and an amount of sulphurous acid (or sulphite radical) greater than that corresponding to the normal sulphite and less than that corresponding to the acid sulphite.—A. P.-C.

Pulping Process. G. A. Richter. Can. pat. 264,292, Sept. 14, 1926. Wood is digested first in an acid sulphite liquor under heat and pressure, and then further digested by addition to the mass of sufficient alkali in excess to maintain the alkalinity of the mass; this causes the solution of the less resistant celluiose.—A. P.-C.

Monosulphite Process. V. Drewsen. Paper Trade J. 83, No. 24, 41-42 (Dec. 9, 1926). An outline is given of the work carried out by the author on the sodium monosulphite pulping process, which is essentially the same as the co-called Keebra process, so much so that an interference case is pending between the West Virginia Pulp and Paper Company and L. Bradley and E. P. McKeefe on an application for a patent for cooking wood with monosulphite.—A. P.-C.

Keebra Pulp. Anon. Zellstoff U. Papier 6, 512-513 (Dec. 1926). The semi-alkaline Keebra cooking process is briefly described. Based on the article by J. d'A. Clark in the World's Paper Trade Review, No. 18 (1926).—J. L. P.

Treating Magnesium Monosulphite Waste Liquors. V. Drewsen. U. S. pat. 1,605,929, Nov. 9, 1926. Magnesium monosulphite waste liquor produced in the digestion of vegetable fibrous material is boiled with slaked burned dolimitic lime to precipitate magnesium hydroxide, the precipitate is filtered out and dissolved in carbon dioxide solution under pressure, the resulting magnesium bicarbonate solution is filtered and treated with magnesium bisulphite to produce magnesium monosulphite for reuse as cooking liquor.—A. P.-C.

Circulation System for Sulphite Cooking. J. T. Jaeger. U. S. pat. 1,572,723, Feb. 9, 1926; Paper Trade J. 83, No. 26, 41-42 (Dec. 23, 1926). Liquor is withdrawn from the bottom of the digester by means of a steam injector and returned to the top of the digester through a spray nozzle. The liquor is thus simultaneously circulated and heated.—A. P.-C.

Process of Treating Sodium Monosulphite Waste Liquors. V. Drewsen. U. S. pats. 1,605,925 to 1,605,928, inc., Nov. 9, 1926. No. 1,605,925.—Sodium monosulphite waste liquor produced in the digestion of vegetable fibrous material is concentrated, treated with caustic lime to form a product containing calcium acetate, incinerated to form sodium carbonate, and the latter is leached out. No. 1,605,926.—The concentrated liquor is treated with calcium carbonate (20 to 30 per cent of the weight of the concentrated liquor), the mixture is concentrated and burned in presence of air while agitating to form calcium sulphide and sodium carbonate, ground and leached to remove the sodium carbonate. The sodium carbonate is treated with sulphur dioxide to form sodium monosulphite, and the calcium sulphide is treated, while suspended in water, with carbon dioxide to liberate hydrogen sulphide for use in producing sulphur dioxide. No. 1,605,927.—The waste liquor is dried and burned, soluble sodium salts, including sodium sulphide, are dissolved out, and the sodium sulphide is used for the production of sodium bicarbonate and sulphur dioxide, elg., by the use of carbon dioxide under pressure. No. 1,605,928.—Waste liquor from the sodium monosulphite process of cooking

wood, straw or other similar vegetable material, is concentrated and treated with an excess of lime and crude niter cake which has been causticized with powdered quicklime, the mixture is burned to eliminate water and organic matter and effect reduction of sulphates and form a fused mixture of calcium sulphide and sodium carbonate, and the latter is leached out.—A. P.-C.

Cooking Diagrams with Sulphite Liquors Containing Magnesia. K. Berndt. Papierfabr. 24, 561-565 (Sept. 12); 584-587 (Sept. 19, 1926). From cooking experiments in a 500 l. rotary digester with calcium, and magnesium bisulphite cooking liquors, and a mixed calcium-magnesium bisulphite liquor, the conclusion is drawn that the magnesium liquor offers a greater security of operation because of the less danger of sulphite precipitation. Another advantage is found in the much wider limits of the base concentration. For this reason the use of calcium bisulphite liquors is not so practicable owing to the separation of the insoluble calcium sulphite. With magnesia-containing liquors of minimum H ion concentration, it is possible to cook raw fibrous materials which heretofore did not readily yield to the sulphite process. Pulps of the best quality can now be prepared by this means. During the first stage of the digestion process, the calcium content of calcium bisulphite liquors decreased rapidly, then was practically constant during the long part of the digestion period, and finally decreased rapidly. With liquors containing magnesia, a curve with a more uniform slope was obtained in the actual cook. Perhaps the magnesium carbohydrate lignosulphonic acid combination is more readily soluble than the corresponding calcium salt.—J. L. P.

Sulphur Dioxide Solutions. W. B. Campbell. Pulp and Paper International No., 140-142 (Feb., 1927). Results found on a search of the literature are given in graphical form, together with an explanation of the methods of developing the curves of vapor pressures given and information relative to the original sources from which the data used were obtained.—A. P.-C.

Digestion of Spruce Wood with Sodium Bisulphite. E. Haegglund. Papierfabr. 24, 775-780 (Dec. 12, 1926). Contribution No. 5 on the chemistry of sulphite pulp cooking. The presence of thiosulphate ions in a sodium bisulphite solution causes a rapid decomposition of the bisulphite ion, which is an autocatalytic process, with the formation of sulphuric acid. In the cooking process the formation of sugar parallels the accumulation of sulphuric acid. Three reaction phases for the digestion process are differentiated: 1. sulphite addition to the lignin-carbohydrate compound with the formation of a solid lignosulphonic acid; 2. hydrolysis of the lignin sulphonic acid-carbohydrate compound in the solid phase; and 3. hydrolysis of the liberated carbohydrate. Waste sulphite liquor from experimental cooks yielded 3.6-4.7 times as much sugar after inversion with 3.3 per cent hydrochloric (boiling for 2½ hours) as compared with the original waste liquor. Xylose, mannose, and glucose, the chief component, were among the sugars detected. During the beginning of the digestion the pentosans pass rapidly into solution, but later this rate is decreased. Wood was converted to sugar with highly concentrated hydrochloric acid, the lignin filtered, and the filtrate diluted to a hydrochloric acid concentration of 12 per cent and distilled. The pentosan yield was 5.84 per cent of the weight of the wood. A direct determination on the wood yielded 7.08 per cent, the difference being due to the lignin. Evidence is given to show that the formation of sulphuric acid in black cooks is occasioned by the reaction: $3\ H_2SO_3 = 2\ H_2SO_4 + S + H_2O$. The pulp yields with a 12 per cent sodium bisulphite liquor were very high; the fibers, whole and very strong.—J. L. P.

Chemistry of Pulping Flax Straw. I. Hydrolysis with Sodium Sulphite. Mark W. Bray and Clifford E. Peterson. Ind. Eng. Chem. 19, 371-372 (March, 1927). The action of sodium sulphite solutions upon flax straw grown for seed purposes at two concentrations and at two ratios of chemical to oven-dry straw under cooking conditions otherwise constant has been studied. Increasing the concentration of the solution from 40 to 80 g. of sodium sulphite per l., without altering the ratio of chemical to straw, has but little effect on time of cooking or on the relation of the chemical composition of the pulp to the yield; but increasing the proportion of sodium sulphite from 20 to 40 per cent by weight greatly accelerates the rate of cooking.—A. P.-C.

Effect of Temperature Upon Freeness of Sulphite Pulp. D. S. Davis. Ind. Eng. Chem. 19, 162-165 (Jan., 1927). Plots are given which show the effect of temperature upon the freeness of sulphite stocks. The effect is accounted for almost entirely by the viscosity of the suspending medium. Plots are also included showing freeness as a function of viscosity, the rate of freeness with temperature as a function of temperature and the amount of steam required to free a stock as a function of its initial freeness. To assist in the study of the rate of change of freeness with temperature, the freeness-temperature data have been subjected to a simple, general mathematical treatment. Data given show that the freeness-consistency chart given in a previous article (Ind. Eng. Chem. 18, 631 (1926), intended for use at 20 degrees C., is applicable at other temperatures between consistencies of 0.35 per cent and 0.45 per cent. It is shown that sulphite stock acquires no "permanent set" in freeness upon heating, thus strengthening the viscosity theory. Data are included which show the extent to which a sulphite stock becomes slower on standing.—A. P.-C.

Steam Consumption in the Ritter-Kellner Sulphite Pulp Cooking Process. E. Rinderknecht. Wochbl. Papierfabr. 58, 1275-1277 (Nov. 13, 1926). Using the Gehre system for measuring the steam furnished to Ritter-Kellner pulp digesters, the value 2.67 kg. steam per kg. air-dry pulp was the average of tests extending over two months. The rate of steam consumption, and distribution of the heat during the cooking period are calculated and shown graphically.—J. L. P.

Description of the Most Modern Sulphite Pulp Mill in Canada. J. Funcke. Papierfabr. 24, 644-648 (Oct. 17, 1926). A comprehensive description, with 12 illustrations, of the Kipawa mill of the Riordon Pulp Corporation at Temiskaming, P. Q., Canada. Among the subjects discussed are: water power, water, wood, acid manufacture, digesters, screening operations, bleaching, drying machines, boiler house, and the laboratories.—J. L. P.

Heat and the Sulphite Cooking Process. Leaser. Papierfabr. 25, 1-3 (Jan. 2, 1927). An address in which heat economy of the sulphite digestion process is discussed.—J. L. P.

Resins in Paper Making. John Campbell. Pulp and Paper International No., 118-121 (Feb., 1927); Paper Ind. 8, 1912-1913 (Feb., 1927). Resins in wood are naturally water-repelling, and in order to obtain proper penetration of the sulphite liquor the latter must disperse the resin sufficiently to overcome its repelling action and allow of thorough wetting of the chips. This can be obtained by lowering the interfacial tension between the acid and resins (which are liquid at the temperature of penetration) by adding substances such as soda or ammonium salts (which react to form bisulphites in the cooking liquor) or certain sulphonated organic compounds, such as Turkey red oil. In order to prevent "pitch" troubles on the paper machines the resins carried by the stock in a state of fine dispersion must be coagulated at such a rate as to form fine flocks which are held within the layer of paper, larger flocks having a tendency to gather on the surface and sticking to the paper machine clothing. The rate of coagulation depends on the pH value and on the temperature of the water associated with the fibers. In winter (the experiments were carried out in Northern Ontario) with a pH value of 4.3 to 4.4 no "pitch" trouble is encountered; in summer the rate of coagulation may be retarded either by cooling the water or by adding a small amount of sulphuric acid.—A. P.-C.

Sulphite Pulp for Use in the Manufacture of Rayon. Anon. Paper Trade J. 83, No. 26, 43 (Dec. 23, 1926). Brief discussion of the properties required of sulphite used in the manufacture of rayon.—A. P.-C.

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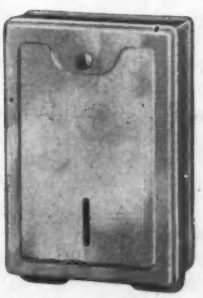

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Obituary

Frank S. Thayer

Frank S. Thayer, manager of the San Francisco branch of Carter Rice & Company, for almost a half century, a notable figure in the paper business, died in San Francisco, October 19.

In his early twenties Mr. Thayer established in Boston the firm of Thayer & Wadhorn, stationers, in which business he continued for a few years. On account of very poor health, he went to Colorado. His condition improved so much that he took a commission line, representing the Carter Rice Company, of Boston. He made such progress that in the early eighties, the company established a Denver branch which Mr. Thayer managed with signal success until 1915.

As his physician advised him that year to go to a lower altitude he and his wife removed to California. After a rest he became manager of a San Francisco branch, which Carter Rice & Co. started. Mr. Thayer repeated the Denver success and as a "side line" published a number of brochures, principally scenic, all gems of the printed art.

Mr. Thayer was ambitious throughout his life. Of a most engaging personality and a staunch friend, he commanded strong friendships. Art and music appealed to him greatly and under a pseudonym he contributed frequently to the press. He was always enthusiastic in his fads and fancies.

A wife in San Francisco and a son, Harold, a director of the Carter Rice & Carpenter Paper Company of Denver, survive him.

Stuart F. Marchant

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, October 24, 1927.—Stuart F. Marchant, a pioneer in the paper merchandising business in Chicago, died last week at his home in the Orrington hotel, Evanston, following an illness of two weeks. Mr. Marchant was treasurer of the Pilcher-Hamilton Paper Company, 340 North Dearborn street, which was known as the McCann-Fitch Company when he became connected with the concern in 1867. He was 76 years old.

Paper Technologists' Club Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., October 24, 1927.—The second meeting of the Paper Technologists' Club was held at the Columbia Hotel on the evening of October 12. Dinner was served at 6:45 o'clock. The secretary's report was read by E. J. Turner in the absence of Secretary A. C. Dreshfield.

Frank Whittington, of the Standard Paper Company, reported very completely on the convention of the Technical Association of the Pulp and Paper Industry at Middletown the week previous. Frank Libby, of the Kalamazoo Vegetable Parchment Company, added several points regarding his own impression of the convention.

Mr. Whittington was asked to report for the Research Committee and he stated that the committee had planned to present a report on the effect of the relative humidity on the actual moisture content of paper. In view of the long program which had been arranged for this meeting in addition to the absence of Mr. Cox, who had worked on this report, it was thought best to take this up at the next meeting.

The chairman, Mr. Lundbeck, next introduced Ralph Hayward, of the Kalamazoo Vegetable Parchment Company, who spoke on the "Relationship between the Technical Man and the Management." Mr. Hayward gave a very good heart to heart talk on the problems of a technical man and a great deal of good was undoubtedly derived by all those present. He devoted considerable time to the discussion of routine testing. The value of routine tests was admitted but he urged the elimination of all unimportant tests or tests which accomplish no definite end. He also stressed the importance of getting reports on routine tests to the interested party promptly so as to avoid the accumulation of ancient history. The importance of making reports clear and understandable by executives who are not trained along technical lines was emphasized. Mr. Hayward also gave us very valuable advice on getting along with the superintendents and foremen and stressed the necessity of the technical man selling himself and his services to the management.

Discussion was opened by Mr. Lundbeck, who described several personal experiences illustrating the problems of the paper mill chemist. Other remarks were added by Messrs. Turner, Milham, Schneider and Libby.

Mr. Bradford, of the Rex Paper Company, announced that the next meeting of the local section of the Cost and Technical Association would be held at the Postum Cereal Company in Battle Creek under the sponsorship of the Michigan Carton Company. He announced that Kenneth King, of the Du Pont Company, would talk on colors and that one or two others were being considered as speakers on Costs. This meeting is scheduled for October 26.

Champion Coated Paper Co. To Issue Stock

[FROM OUR REGULAR CORRESPONDENT]

HAMILTON, Ohio, October 24, 1927.—Stockholders of the Champion Coated Paper Company at Hamilton have voted to amend the company's charter so as to authorize a $4,000,000 issue of 7 per cent cumulative special preferred stock, callable at 105.

Of the total 68,000 outstanding shares of common stock, 64,644 shares were represented, and were voted unanimously in approval of the recommendations of the directors.

Immediately following the stockholders' meeting the directors authorized the issuance at this time of a fourth of the proposed issues, consisting of 10,000 shares at $100 each, for the purpose of completing the refunding of the amounts outstanding in bank loans to finish payment for the remodeling of the company's plant and the purchase of the entire common stock of the Champion Fibre Company.

In a letter to holders of Champion Coated Paper common stock the company states that the 10,000 shares of the new special preferred will now be offered to holders of record as of October 14 in proportion to their holdings, which figures out at about 10 shares of the new preferred for each 68 shares of common now held.

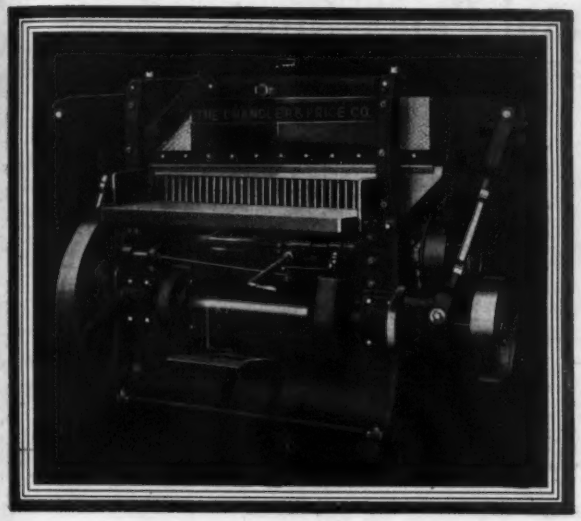
Stockholders who subscribe to this issue will thereby acquire a prior right to subscribe in the future to any offering of any part of the authorized but still unissued $3,000,000 of the special preferred stock ahead of all rights of the common stock at such time or times.

It was further ordered that no fractional shares be issued and that any fractional interest therein be given the right to subscribe to one full share. This arrangement has been effected through relinquishment by a large subscriber of such part of his allotment of such preferred stock as may be necessary to carry into effect the foregoing arrangement as to fractional shares.

Stockholders were notified that subscriptions must be made and filed with the Fifty-Third-Union Trust Company on or before November 20 and must be paid for on or before January 15, 1928. It is expected that certificates will be ready for delivery January 2 next on all subscriptions paid on or before December 31, 1927.

Jacobson Engineering Co. Moves

Jacobson Engineering Company, consulting engineers specializing in the design and supervision of construction of pulp and paper mills and hydro-electric power plants, announce the removal of their offices to nine hundred and four Plymouth Building, Minneapolis, Minn.



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Printing paper .....74 rolls, 443 cs.
Wrapping paper .....176 bls., 79 cs.
Packing paper .....4 bls.
Decalcomania paper .....63 cs.
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Envelopes .....86 cs.
Photo paper .....2 cs.
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R. Wilson Paper Corp., Volendam, Rotterdam, 290 rolls.
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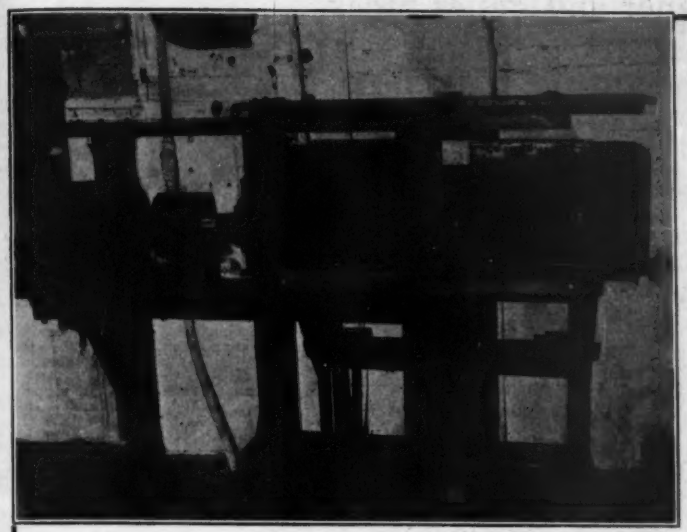
International Forwarding Co., Ryndam, Rotterdam, 3 cs.
Whitfield Paper Works, Havre Maru, Kobe, 25 cs.
Perry, Ryer & Co., Cameronia, Glasgow, 57 cs.
G. W. Sheldon & Co., American Farmer, London, 2 cs.
M. M. Cohen, Drottningholm, Gothenburg, 54 bls., 52 rolls.
C. K. MacAlpine & Co., Drottningholm, Gothenburg, 13 bls.
Arkell Safety Bag Co., Drottningholm, Gothenburg, 260 rolls.
E. H. Sergeant & Co., Drottningholm, Gothenburg, 2 cs.
Japan Paper Co., Ile de France, Havre, 14 cs.
Quality Art Novelty Co., Ile de France, Havre, 6 cs.
Keller Dorian Paper Co., Ile de France, Havre, 11 cs.
J. A. Hearn & Son, Ile de France, Havre, 3 cs.
P. H. Petry & Co., Ile de France, Havre, 8 cs.
C. H. Boulin, Ile de France, Havre, 15 cs.
P. C. Zuhlke, Volendam, Rotterdam, 11 cs.
Japan Paper Co., Volendam, Rotterdam, 2 cs.

RAGS, BAGGINGS, ETC.

E. Butterworth & Co., Inc., N. Y. City, Bristol, 144 bls. rags.
American Exchange Irving Trust Co., Maryland, Dunkirk, 43 bls. rags.
Castle & Overton, Inc., Maryland, Havre, 58 bls. rags.
National City Bank, Maryland, Havre, 129 bls. rags.
National City Bank, Maryland, Havre, 27 bls. bagging.
Equitable Trust Co., Maryland, Havre, 18 bls. bagging.
E. J. Keller Co., Inc., Maryland, Havre, 60 bls. bagging.
E. J. Keller Co., Inc., Maryland, Havre, 237 bls. rags.
E. Mayer, Maryland, Havre, 138 bls. rags.
Castle & Overton, Inc., Marengo, Newcastle, 239 bls. bagging.
Castle & Overton, Inc., Marengo, Newcastle, 251 bls. rags.
S. Birkenstein & Son, Marengo, Newcastle, 192 bls. rags.
Bulkley, Dunton & Co., Marengo, ——, 101 bls. bagging.
National City Bank, Marengo, Antwerp, 51 bls. bagging.
Phila. Girard National Bank, Marengo, Antwerp, 98 bls. rags.
J. Cohen Son & Co., Cameronia, Glasgow, 15 bls. paper stock.
Guaranty Trust Co., Cameronia, Glasgow, 35 bls. paper stock.
Equitable Trust Co., Frederick VIII, Copenhagen, 813 bls. rags.
Warren Manfg. Co., Hamburg, Hamburg, 79 bls. bagging.
E. Mayer, Hamburg, Hamburg, 117 bls. rags.
Manufacturers Trust Co., Aurania, Liverpool, 21 bls. rags.
B. D. Kaplan, Aurania, Liverpool, 4 bls. rags.
Mutnick Bros., Cedric, Liverpool, 9 bls. rags.
E. Butterworth & Co., Inc., Cedric, Liverpool, 117 bls. bagging.
Castle & Overton, Inc., Cedric, Liverpool, 73 bls. bagging.
Darmstadt, Scott & Courtney, Cabo Mayor, Genoa, 161 bls. bagging.
R. Canovai Son, Cabo Mayor, Marseilles, 94 bls. rags.
A. W. Fenton, Inc., Lucia C., Trieste, 710 bls. rags.
M. Snedeker Corp., Kearny, Belfast, 72 bls. paper stock.
Castle & Overton, Inc., Kearny, Manchester, 50 bls. bagging.
Castle & Overton, Inc., Kearny, Manchester, 13 bls. rags.
E. J. Keller Co., Inc., Kearny, Manchester, 34 bls. rags.
E. J. Keller Co., Inc., Sacandaga, Antwerp, 56 bls. linen threads.
Darmstadt, Scott & Courtney, Sacandaga, Antwerp, 187 bls. flax waste.
Castle & Overton, Inc., Waukegan, Dunkirk, 84 bls. rags.
Salomon Bros. & Co., Waukegan, Dunkirk, 54 bls. rags.
A. W. Fenton, Inc., Waukegan, Dunkirk, 8 bls. rags.
R. Bishop Manfg. Co., Waukegan, Dunkirk, 197 bls. rags.
American Exchange Irving Trust Co., Suevier, Antwerp, 34 bls. rags.
E. J. Keller Co., Inc., Columbus, Bremen, 70 bls. rags.
National City Bank, Tijuca, Antwerp, 78 bls. bagging.
Chemical National Bank, Tijuca, Antwerp, 26 bls. bagging.
J. Cohen Son & Co., Tijuca, Antwerp, 53 bls. paper stock.
National City Bank, Tijuca, Antwerp, 69 bls. jute waste.
E. J. Keller Co., Inc., Tijuca, Antwerp, 89 bls. bagging.
W. Schall & Co., Tijuca, Antwerp, 105 bls. flax waste.
A. W. Fenton, Inc., Dresden, Bremen, 61 bls. rags.
American Exchange Irving Trust Co., Dresden, Bremen, 133 bls. bagging.

(*Continued on page 128*)



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Use less pressure and steam per pound of water evaporated from paper or board, than any other scheme or system in existence.

HEALY-RUFF COMPANY

ST. PAUL, MINN.

Imports of Paper and Paper Stock

(*Continued from page 126*)

Castle & Overton, Inc., London Commerce, London, 14 bls. thread waste.
Castle & Overton, Inc., London Commerce, London, 3 bls. rags.
Castle & Overton, Inc., London Commerce, London, 34 bls. bagging.
Castle & Overton, Inc., Yorck, Bremen, 105 bls. moss litter.

OLD ROPE

Brown Bros. & Co., Ryndam, Rotterdam, 140 coils.
Brown Bros. & Co., Marengo, Hull, 86 coils.
Brown Bros. & Co., Marengo, Newcastle, 84 coils.
G. W. Millar & Co., Marengo, Newcastle, 104 coils.
Bulkley, Dunton & Co., Marengo, ——, 43 coils.
N. E. Berzen, Cabo Mayor, Marseilles, 187 rolls.
American Exchange Irving Trust Co., Dresden, Bremen, 22 bls.
E. J. Keller Co., Inc., Maryland, Havre, 31 bls.
E. J. Keller Co., Inc., Tijuca, Antwerp, 102 bls.

CASEIN

Atterbury Bros., Inc., Kifuku Maru, Hamburg, 333 bags, 25,000 ks.
T. M. Duche & Son, Lalande, Buenos Aires, 834 bags.

CHINA CLAY

C. T. Wilson & Co., Inc., N. Y. City, Bristol, 25 casks.

WOOD PULP

Bulkley, Dunton & Co., Ryndam, ——, 850 bls. wood pulp.
J. Anderson & Co., Kifuku Maru, Hamburg, 1,050 bls. sulphite, 210 tons.
E. J. Keller Co., Inc., Kifuku Maru, Hamburg, 849 bls. wood pulp, 149 tons.
M. Gottesman & Co., Inc., Kifuku Maru, Hamburg, 2,000 bls. wood pulp, 405 tons.
Perkins, Goodwin & Co., Bird City, Umea, 875 bls. sulphate, 127 tons.
Scandinavian Pulp Agency, Inc., Bird City, Gothenburg, 34 bls. sulphite, 6 tons.
Chemical National Bank, Frederick VIII, Oslo, 450 bls. wood pulp.
Lagerloef Trading Co., Hamburg, Hamburg, 610 bls. wood pulp, 101 tons.
Johanson, Wales & Sparre, Inc., Hamburg, Hamburg, 155 bls. sulphite, 25 tons.
Parsons & Whittemore, Inc., Yorck, Bremen, 260 bls. wood pulp.
J. Anderson & Co., Lucia C., Trieste, 688 bls. wood pulp.
American Exchange Irving Trust Co., Lucia C., Trieste, 294 bls. wood pulp.
E. M. Sergeant & Co., Drottningholm, Gothenburg, 400 bls. sulphite.
E. M. Sergeant & Co., Drottningholm, Gothenburg, 599 bls. soda pulp.
Price & Pierce, Ltd., Drottningholm, Gothenburg, 250 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Wanja, Skutskar, 125 bls. wood pulp, 25 tons.
Scandinavian Pulp Agency, Inc., Wanja, Sundsvall, 1,500 bls. sulphate, 300 tons.
Scandinavian Pulp Agency, Inc., Wanja, Sundsvall, 6,375 bls. sulphite, 1,275 tons.
M. Gottesman & Co., Inc., Wanja, Sunrsvall, 500 bls. sulphite, 100 tons.
Brown Bros. & Co., Wanja, Norrsundet, 500 bls. sulphate.
J. Anderson & Co., Copenhagen, Gefle, 7,500 bls. wood pulp, 1,524 tons.
Castle & Overton, Inc., Gustavsholm, Svartvik, 399 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Bird City, Raume, 297 rolls.
Lagerloef Trading Co., Bird City, Raume, 163 bls.
Lagerloef Trading Co., Dresden, Bremen, 80 bls.
C. K. MacAlpine & Co., Drottningholm, Gothenburg, 11 bls.
Fibre Case & Novelty Co., Drottningholm, Gothneburg, 78 bls.

WOOD PULP WADDING

Birn & Wachenheim, Ryndam, Rotterdam, 100 bls.

WOOD FLOUR

A. Kramer & Co., Ryndam, Rotterdam, 300 bags.
Brown Bros. & Co., Volendam, Rotterdam, 500 bags.
State Chemical Co., Volendam, Rotterdam, 400 bags.

BOSTON IMPORTS

WEEK ENDING OCTOBER 22, 1927

Crocker Burbank Co., Mississippi, London, 622 bls. waste paper.
Brown Bros. & Co., Mississippi, London, 151 bls. waste paper.
T. D. Downing & Co., Mississippi, London, 39 bls. rags.
Lagerloef Trading Co., Bird City, Raumo, 33 bls. wood pulp boards, 4 tons
Perkins, Goodwin & Co., Bird City, Umea, 11,375 bls. sulphite, 1,651 tons.
Pagel, Horton & Co., Inc., Bird City, Ornskoldsvik, 150 bls. sulphate, 25 tons.
Pagel, Horton & Co., Inc., Bird City, Ornskoldsvik, 600 bls. sulphite, 101 tons.
Scandinavian Pulp Agency, Inc., Bird City, Gothenburg, 5,334 bls. kraft pulp, 1,066 tons.
Scandinavian Pulp Agency, Inc., Bird City, Gothenburg, 2,842 bls. sulphite, 566 tons.
Parsons & Whittemore, Inc., Ferncliff, ——, 914 bls. wood pulp.
Parsons & Whittemore, Inc., Ferncliff, ——, 914 bls. wood pulp.
Parsons & Whittemore, Inc., Seattle Spirit, ——, 135 bls. wood pulp.
Parsons & Whittemore, Inc., Seattle Spirit, ——, 175 bls. wood pulp.
Parsons & Whittemore, Inc., Seattle Spirit, ——, 675 bls. wood pulp.
Castle & Overton, Inc., Seattle Spirit, Germany, 57 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 22, 1927

J. A. Steer & Co., N. Y. City, Bristol, 90 coils old rope.
Bank of The Manhattan Co., N. Y. City, Bristol, 62 coils old rope.
Phila. Girard National Bank, London Commerce, London, 254 bls. rags.
Robert Blank, London Commorce, London, 159 bls. rags.
Equitable Trust Co., London Commerce, London, 43 bls. rags.
Paper Service Co., London Commerce, London, 5 pkgs. fancy paper.
Brown Bros. & Co., London Commerce, London, 42 bls. rags.
O. G. Hempstead & Co., London Commerce, London, 380 bls. rags.
Union National Bank, London Commerce, London, 64 bls. rags.
Bank of The Manhattan Co., London Commerce, London, 108 bls. rags.
Bank of The Manhattan Co., London Commerce, London, 73 bls. rope.
Union National Bank, Maryland, Havre, 43 bls. old rope.
National Bank of Commerce, Maryland, Havre, 631 bls. rags.
Castle & Overton, Inc., Maryland, Havre, 535 bls. rags.
Chase National Bank, Maryland, Havre, 16 bls. rags.
Phila. Girard National Bank, Maryland, Havre, 29 bls. rags.
Equitable Trust Co., Maryland, Havre, 99 bls. rags.
Tradesmans National Bank, Maryland, Havre, 128 bls. rags.
National City Bank, Liberty Land, Naples, 175 bls. rags.
Fidelity Trust Co., Liberty Land, Palermo, 187 bls. rags.
S. Birkenstein & Son, Cabo Mayor, Genoa, 235 coils old rope.
S. Birkenstein & Son, Cabo Mayor, Valencia, 135 bls. rags.
J. M. Hagy Waste Works, Westerner, Rotterdam, 95 bls. rags.
Green, Hamilton & Co., Westerner, Rotterdam, 35 bls. thread waste.
E. M. Sergeant & Co., Copenhagen, Hernosand, 1,500 bls. sulphite, 250 tons.
Pagel, Horton & Co., Inc., Copenhagen, Husum, 6,000 bls. sulphate, 1,000 tons.
Pagel, Horton & Co., Inc., Copenhagen, Husum, 1,200 bls. sulphite, 200 tons.
Bulkley, Dunton & Co., Copenhagen, ——, 1,250 bls. sulphite, 250 tons.
A. H. Searle & Co., Waukegan, Havre, 63 bls. rags.
Salomon Bros. & Co., Waukegan, Havre, 116 bls. rags.
A. Hurst & Co., Waukegan, Havre, 135 bls. rags.
V. Galaup, Waukegan, Havre, 169 bls. rags.
V. Galaup, Waukegan, Dunkirk, 271 bls. rags.
Salomon Bros. & Co., Waukegan, Dunkirk, 62 bls. rags.
E. Mayer, Waukegan, Dunkirk, 45 bls. rags.
Castle & Overton, Inc., Waukegan, Dunkirk, 79 bls. rags.
J. W. Hartzell, Waukegan, Havre, 6 cs. writing paper.
J. W. Hampton, Jr., & Co., Waukegan, Havre, 3 cs. writing paper.
E. J. Keller Co., Inc., P. Luckenbach, ——, 50 bls. rags.
Robert Blank, Collamer, Bordeaux, 281 bls. rags.
Parsons & Whittemore, Inc., Kellerwald, Hamburg, 307 bls. wood pulp.
Castle & Overton, Inc., Sacandaga, Antwerp, 842 bls. rags.
Castle & Overton, Inc., Breedyk, Germany, 14 bls. rags.
Castle & Overton, Inc., Kellerwald, Germany, 57 bls. rags.
Castle & Overton, Inc., Boston City, Bristol, 69 bls. rags.
Castle & Overton, Inc., Dakarian, England, 26 bls. rags.
Castle & Overton, Inc., West Harcuvar, Germany, 120 bls. rags.

PORTLAND IMPORTS

WEEK ENDING OCTOBER 22, 1927

Pagel, Horton & Co., Inc., Bird City, Ornskoldsvik, 1,200 bls. sulphate, 203 tons.
Scandinavian Pulp Agency, Inc., Bird City, Gothenburg, 2,540 bls. sulphate, 508 tons.

NORFOLK IMPORTS

WEEK ENDING OCTOBER 22, 1927

E. J. Keller Co., Inc., Bolivian, London, 32 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 22, 1927

National City Bank, Maryland, Dunkirk, 410 bls. rags.
National City Bank, Maryland, Havre, 832 bls. rags.
Phila. Girard National Bank, Liberty Land, Palermo, 168 bls. rags.

NEW ORLEANS IMPORTS

WEEK ENDING OCTOBER 22, 1927

Castle & Overton, Inc., West Wauna, England, 40 bls. rags.
Castle & Overton, Inc., Gand, France, 458 bls. rags.
E. J. Keller Co., Inc., Missouri, Havre, 134 bls. bagging.
E. J. Keller Co., Inc., Missouri, Bordeaux, 179 bls. rags.
E. J. Keller Co., Inc., Adron, ——, 422 bls. bagging.

QUEBEC IMPORTS

WEEK ENDING OCTOBER 22, 1927

Robert Blank, Alaunia, London, 211 bls. rags.

The Book of Opportunities

What three thousand American occupations have to offer is comprehensively explained and illustrated in "The Book of Opportunities," published by G. P. Putnam's Sons, of 2 West 45th street, New York.

This new work brings a definitely reassuring message to any one who is restive in his or her mind about their vocation. It shows how there is available in the United States today a remunerative opportunity to fit every shade of temperament and every sort of ambition.

The volume is edited by Rutherford H. Platt, Jr., assisted by Miss Rebecca T. Farnham. A. A. Walgren is responsible for the timely and humorous illustrations, while Tony Sarg designed the attractive and appropriate cover.

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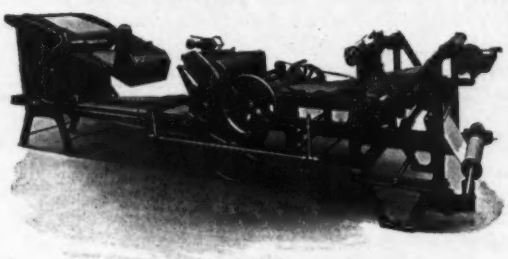

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New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, October 26, 1927.

Trading in the local paper market continued active during the past week. All the various grades were in excellent request and the upward tendency is anticipated to prevail during the balance of the year. Prices are holding up to previously reported levels and no concessions are looked for at the present time. Sales forces of the leading organizations are reported to be booking a large volume of orders, although extra big orders are said to be somewhat scarce.

Production of news print is being maintained on a large scale and the output is being freely absorbed by the publishers. The outlook is brighter than for some time, as circulations are increasing materially and nearly all the newspapers are increasing the sizes of their issues. Contract prices for the forthcoming year are expected to be announced shortly.

The paper board market is in a strong position. Box board and liner board continue in good request. Some improvement has developed in the fine paper market. Tissues are still in good demand. The coarse paper market is exhibiting a sound tendency and wrapping paper is moving in excellent volume. Prices remain steady and unaltered.

Mechanical Pulp

While the demand for ground wood has increased slightly, the market is still inclined to be busy. However, a general improvement is expected to take place as soon as colder weather arrives. Production is being maintained along seasonal lines and supplies are quite sufficient to take care of current requirements. Prices are holding up to schedule, in most instances.

Chemical Pulp

Both imported and domestic chemical pulp are arousing more interest and some good sized orders are said to have been booked for future delivery. A good volume of inquiries are in the market and the outlook for the future is promising. Supplies continue to move into consumption at a normal pace. Prices remain steady and unchanged.

Old Rope and Bagging

Domestic old rope is in moderate request while imported old rope is also in fair demand. Prices are practically unchanged from the recently quoted levels. Scrap bagging is more active than of late. Bleachery burlap is arousing some interest but gunny bagging is rather quiet. No radical price changes have been reported.

Rags

Fairly steady conditions prevail in the local rag market. Cotton cuttings are still in excellent request. There is a fair inquiry for mixed rags. Domestic roofing rags are displaying a strong undertone at present. The foreign rag market is only moderately active. Prices remain unchanged, in most instances.

Waste Paper

No important changes were reported in the paper stock market. The lower grades of waste paper continue to be absorbed freely by the paper mills. Demand for the higher grades also appears to be broadening somewhat. Book stock is reported to be in better demand than of late and kraft papers are also in steady request. The advanced prices recently reported are generally being maintained.

Twine

With the busiest shopping season of the year near at hand and the demand for wrapping paper steadily expanding, the position of the twine market is very strong. The various grades of twine are in steadily growing request and prospects for the closing months of the year are encouraging. Prices rule steady to firm.

Waste Material Dealers Convene

CHICAGO, Ill., October 24, 1927.—The autumn meeting of the National Association of Waste Material Dealers was held last Wednesday afternoon at the Congress Hotel, Chicago, and was calleld to order by President Rady. Mr. Rady said that he was glad to be able to attend the meeting in the West, welcoming those members from points outside of Chicago who were in attendance and thanking the Chicago members for their hospitality.

The Treasurer's report showed that the Association is in good financial shape, indicating that even in the face of dull business or slight depression the majority of the members maintain their loyalty to the Association and give it their support.

The report of the Traffic Department showed that since January 1, it had handled seventy claims amounting to $11,946.68 of which $3,928.27 has been collected and turned over to our members without making any change for the service.

The Adjustment Bureau reported that almost $16,000 in past due accounts and claims had been collected for members, besides which many cases had been adjusted or settled where the amount involved was uncertain or unknown.

A very enjoyable dinner took place in the evening. There were no set speeches. President Rady greeted those present with a short address of welcome, expressing his gratification at being able to be present. He said that the excellent manner in which the Association had been received and the hospitality that had been so freely extended by the Chicago members had so impressed him that he wanted to express his personal thanks to them for their kindnesses and to assure them that the officers of the Association were appreciative.

The Secretary then traced the expansion of the Association's activities until now they cover Credit, Traffic, Collections, Adjustments and Arbitration.

Beaver Paper Co. Leases Building

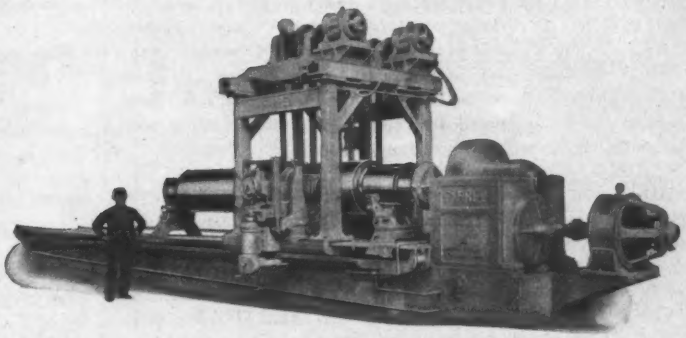
SYRACUSE, N. Y., October 24, 1927.—The Beaver Paper and Supply Corporation has leased through Hills & Co., Inc., from Abrams Bros., the two-story building at 527 Canal street, where a wholesale paper business will be conducted.

The business, which has been carried on in Park street, near Wolf street, by Greenberg Brothers, will be expanded and the building will be remodeled to accommodate the enlarged activities.

The corporation recently purchased the business of John Single Paper Company, which will be handled in the new location.

FARREL

FARREL NEW TYPE ROLL GRINDER is made in 24", 32", 36" and 42" sizes all electrically driven throughout and fitted with new crowning device, Geared Head, Automatic Lubrication, etc.



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Putting into the work those hidden qualities revealed in service.

Every few inches of the roll must be tested by the Plastometer to make sure of unvarying density.

Uniform Paper

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Nearly a quarter of a century of specializing in rubber covered rolls for the paper industry has established a standard that demands the utmost care and skill to maintain.

The work of the master craftsmen is tested by the Plastometer to prove that it is as near perfection as human ingenuity and high-grade materials can make it.

The fact that customers have been with us over a long period of years is evidence that our work has those qualities that are appreciated in the finished product of the paper mill.

Send us your next roll and you will be another satisfied customer.

The Cincinnati Rubber Mfg. Co.
CINCINNATI, OHIO

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, October 26, 1927.

Conditions in the local chemical market have greatly improved of late and practically all of the chemicals used in the paper mills are in increased demand. Supplies are moving into consumption in heavy volume on contract orders. Numerous inquiries are being received for future business. Quotations are holding up well and consumers are anxiously awaiting the contract prices for next year which are expected to be announced shortly.

BLANC FIXE.—The blanc fixe market is in a sound position and both the pulp and the powder are in steady request. Spot supplies are rather limited and prices are somewhat firmer. The pulp is selling at $60 per ton, in bulk, while the powder is still offered at from 4 cents to 4¼ cents a pound, in barrels, at works.

BLEACHING POWDER.—Contract withdrawals of bleaching powder are going forward at an excellent pace. Demand for this product is persistent and prices are generally maintained at the levels which have been in force for some considerable time. Bleaching powder is quoted at from $2 to $2.40 per 100 pounds, in large drums, at works, according to quantity.

CASEIN.—Some improvement has developed in the casein market and a good volume of new orders have been booked. Contract shipments continue to move in a satisfactory manner. Prices have advanced slightly. Domestic casein is now selling at from 17½ cents to 18½ cents a pound. Imported casein is quoted at from 18 cents to 18¼ cents a pound, all in bags, car lot quantities.

CAUSTIC SODA.—Production of caustic soda is being maintained at a high rate, but most of the output is being absorbed and there are no undue accumulations. Prices rule steady to firm. Solid caustic soda is quoted at from $3 to $3.10 per 100 pounds. The flake and the ground are offered at from $3.40 to $3.50 per 100 pounds, in large drums, at works.

CHINA CLAY.—The undertone of the china clay market is steady. Contract withdrawals are proceeding at a normal pace. Quotations on both the imported and the domestic product are unchanged. English china clay is selling at from $15 to $25 a ton, ship side. Domestic paper makers' clay is quoted at from $8 to $9 a ton, in bulk, at mine, and pulverized at from $10 to $12 a ton.

CHLORINE.—Consumption of chlorine has been very heavy of late. Shipments against contract are going forward in good volume. Prices remain unchanged. Chlorine is quoted at 4 cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 4¼ cents to 4½ cents a pound.

ROSIN.—Most of the business transacted in the rosin market during the past week was along routine lines. Offerings at the principal centers are rather limited at present and prices are firmer. At the naval stores, the grades of gum rosin used in the paper mills are now selling at from $9 to $9.20 per 280 pounds gross, in barrels, ex dock. Wood rosin is quoted at $9.50 per 280 pounds gross, southern shipping points.

SALT CAKE.—Steadiness prevails in the salt cake market. Demand for this product is fairly persistent and prices remain steady and unchanged. Salt cake is still offered at from $18 to $19 a ton, in bulk, at works. Chrome salt cake is quoted at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—Substantial shipments of soda ash are moving into consumption. The undertone of the market is strong and prices are holding up to schedule, without difficulty. Contract quotations on soda ash, in car lots, at works, are as follows: in bulk, $1.20; in bags, $1.32½, and in barrels, $1.57½.

STARCH.—Demand for the grades of starch used in the paper mills is steadily expanding. Despite the rising cost of raw materials the refiners have not advanced the schedule. Special paper makers' starch is still offered at $3.07 per 100 pounds, in bags, and at $3.25 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Active conditions prevail in the sulphate of alumina market during the past week. Demand was brisk and contract shipments moved in heavy volume. Prices remain unaltered. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.45 per 100 pounds. The iron free is selling at from $2 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—Producers of sulphur report a heavy movement on contract and the market is in a strong position. Inquiries for future business are being received in good volume. Prices are holding up to the levels which have been in existence for some considerable time. Sulphur is quoted at from $18 to $19 a ton, in bulk, at mine. The spot quotation is $20 per ton.

TALC.—The position of the talc market is practically unchanged and no radical changes have been recorded for some time. Contract withdrawals continue to go forward at a normal rate. Quotations on domestic talc range from $16 to $18 a ton, at eastern mines. French talc is $18 to $22 a ton, ship side.

Paper Shipments Heavy Through Champlain Canal

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., October 22, 1927.—With cold weather only a few weeks away paper shipments through the Champlain barge canal are becoming unusually heavy even for this time of year. Paper mill users of the canal, especially those in Canada, are rushing through large shipments and are apparently guarding against a repetition of conditions last year when many of the late shipments en route to the Metropolitan district were caught in an early freeze which necessitated removal of the paper products from barge to rail at several points along the canal. In the vicinity of Fort Edward alone no less than fifteen barges laden with paper were frozen into the ice and after the shipments were transferred to the railroad were forced to winter where they were caught.

The State Department of Canals has promised that a new type of ice breakers will be available this year to keep navigation open but apparently paper mills are taking no chances. Canadian paper shipments coming by way of Lake Champlain are passing through the canal almost daily. The outgoing shipments from the Fort Edward terminals recently have also been larger than usual and with the pulp shipments being unloaded at frequent intervals the Fort Edward terminals have been exceedingly busy.

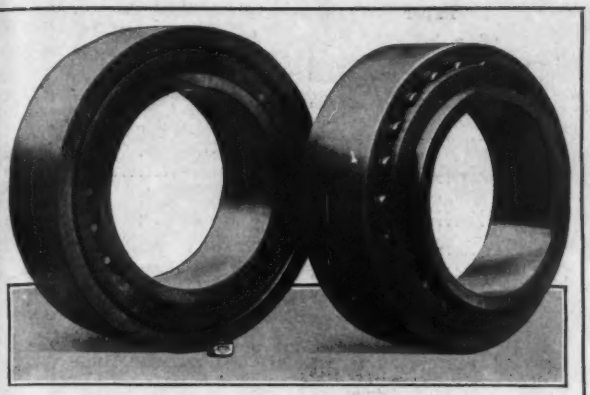
A large shipment of pulp consisting of 1,000 tons, was unloaded a few days ago by the Union Bag and Paper Corporation, this being the latest of a number of pulp shipments received through the Fort Edward terminal by the company this season. The pulp is trucked from Fort Edward to the Hudson Falls mills. The International Paper Company, one of the biggest users of the canal, has been receiving regular shipments of materials throughout the season, the barges on their return to New York carrying news print and other finished products from the I. P. mills in the Hudson Valley.

Despite the fact that navigation on the Champlain Canal opened later than usual last spring owing to canal repairs, it is believed that the present season will see a new record established in the matter of paper tonnage carried. The saving in transportation costs through use of the canal is coming to be recognized more and more by paper mill executives and many plants are now using the water routes even where it is necessary to truck goods several miles to reach a canal terminal.

Paraffine Companies To Build Warehouse

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., October 21, 1927.—The Paraffine Companies, Inc., a Pacific coast concern capitalized for $16,000,000, and with investments scattered over seventeen districts on the west coast, has announced plans for a large warehouse in Portland, which will be built for them and which they will lease for a period of ten years at a rental of $60,000. This will be the first move for an expansion policy in the district, according to George M. Cohan, district manager. The company manufactures paint, roofing, wall boards and paper products.



Big Roller Bearings

for Million Pound Loads

The Roll Neck bearings shown above are designed to carry the enormous pressure encountered in rolling mill service, and have a rated load capacity of one million pounds.

These bearings are used on 25½" Rolls for cold-rolling Brass and Copper products.

Bearings of this general type are recommended for calender rolls or other conditions where the shaft diameter is large and the permissible outside diameter of the bearing is limited.

The Rollway organization has specialized for eighteen years in heavy duty bearings for railway and heavy industrial service.

We solicit an opportunity to study your hardest and heaviest bearing problem.

ROLLWAY BEARINGS

Made in Syracuse, New York
by
Rollway Bearing Company, Inc.

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RAPID PAPER TESTER

STOP GUESSING!

Every Paper Jobber, Paper Buyer, and Paper Maker should have one in order to judge Paper Quality by Scientific Tests.

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"Schopper" Micrometers, Tensile Testers, Folding Testers, Freeness Testers

The World's Standard Instruments

FOREIGN PAPER MILLS, INC.
Sole Agents for United States and Canada
72 DUANE ST. NEW YORK

Clay

300 tons daily

AMERICAN MADE FOR AMERICAN TRADE

AT LAST!!

"An American Coating Clay"

H. T. Brand Coating Clay, Highest Grade Filling Clay, being used in some of the largest paper mills in the country. Send for samples and article on *"An American Coating Clay."* Forty-two years experience in American washed clays are back of this product.

Let us submit sample and quote you.

THE
MINER-EDGAR CO.
110 William St.,
NEW YORK

Market Quotations

Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
Advance Bag & Paper, 7s 1943	105	107
A. P. W. Pulp & Power, 7s 1945	101	102
American Writing Paper, 6s 1947	77	80
Bastrap Pulp & Paper, 6½s 1950	100	103
British Columbia Pulp & Paper, 6s 1950	85	90*
Beaver Products Corp., 7½s 1942	106	109
Berkshire Hills Paper, 8s 1941	60	80
Brown Paper Co., 1st 5½s 1946	96½	99
Bryant Paper Co., 6s 1942	100½	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	99	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corp'n, 1st 6s 1945	95	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	97	101
Donnaconna Paper, 6s 1940	101	102½
Dells Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	89	91
Eddy Paper, 7½s 1931	102	104
Escanaba Paper Serial, 6s 1926-39	94	96
Fiber Fibre Serial, 7s 1926-39	95	...
Fort Orange Paper, 7s 1942	99	102
Fox River Paper, 7s 1931	99	...
Gair Co. (The Robt.), 7s 1937	104	106
Gilbert Paper Co., 6½s 1926-29	89	...
Hammermill Paper, 6s 1939	100	103*
Hoberg Paper & Fibre, 7s 1937	94½	96
Itaska Paper & Prairie River Power, J+5½s 1926-38	94	96*
Itaska Paper, 1st 6s 1933-38	96	98*
Kalamazoo Veg. Parchment, 6s 1938	98	...
Marinette & Menominee, 7½s 1936	100	103
Menasha Printing & Carton, 6½s 1939	99½	...
Mengel Company, 7s 1926 to 1934	103	...
Monroe Paper Products, 7½s 1932	96	...
Munising Paper, 6s 1927-36	96	100
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	94	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	104	...
Paepcke Paper Mills, 7s 1930	99	None
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	96½	98½
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Poland Paper, 7s 1930	98	...
Port Alfred Pulp, 6½s 1943	*96	...
Queens City Paper, 7s 1932	95	100*
Richardson Co., 6s 1938	100	...
Spanish River Pulp & Paper, 8s 1941	106	110
Stevens & Thompson Paper, 6s 1942	93	95
St. Anne Paper, 6½s 1946	95¼	98*
St. Croix Paper, 5s 1926-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	98½	...
Tait Paper & Color Industries, 6s 1934	90	95
Taggart Bros. Co., 6s 1944	94	97
Ticonderoga Pulp & Paper, 5s 1930	95	98
Ticonderoga Pulp & Paper, 6s 1940	99	101
Warren (The S. D.) Company, 6s 1945	99	101
Wotab Paper, 6½s 1943	102	...
Westfield River Paper, 7s 1926-43	Wanted	...
Whitaker Paper, 7s 1942	106	108
Witmer-Parsons Pulp & Lbr. (Units)	63	70

STOCKS	BID	ASKED
Advance Bag & Paper, 8% Pfd.	100	None
Am. Tissue Mills, 7% Pfd.	95	100
British Columbia P. & P., Pfd.	65	70
Brompton Pulp & Paper, 8% Pfd.	93	98*
Brown Corpn., 7% Pfd.	97	100*
Champion Fibre, 7% Pfd.	105	...
Diem & Wing, 7% Cum. Pfd.	87	...
Donnaconna Paper, Com.	58	...
Donnaconna Paper, Pfd.	99	None
Eastern Mfg. Co., 1st Pfd.	34	37
Great Northern Paper, Com.	72	75
Hammermill Paper, 7% Pfd.	105	110
Hinde & Dauch, Com.	135	...
Hinde & Dauch, Pfd.	100	...
Holyoke Card & Paper	150	None
Marathon Paper Mills, Com.	125	...
Midwest Box Co., Pfd. 8%	80	85
Midwest Box Co., Pfd. 6%	55	65
Louis De Jonge Co., 7% Pfd.	93	96
Oxford Papers, Com.	160	170
Oxford Paper Co., Pfd.	175	...
Penobscot Chemical Fibre, Com.	65	75*
Richardson Co., 7% Pfd.	104	...
Rubberoid Company	68	72
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	101½	104½
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper, Com.	52	57
West Virginia Pulp and Paper, Pfd.	101	103
Whittaker Paper, 7% Cum. Pfd.	97	103

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.75	@ 5.25
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	50.00	@52.50
Straw	53.50	@57.50
Chip	47.50	@50.00
Binders' Boards	70.00	@75.00
Sgl. Mla. Ll. Chip.	57.50	@60.00
Wood Pulp	80.00	@85.00
Container	67.50	@72.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@30.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	27.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.40	@ 4.50
Easy Bleaching	2.75	@ 2.90
No. 1 strong unbleached	2.40	@ 2.75
Mitscherlich unBleached	2.55	@ 3.40
No. 2 strong unbleached	2.30	@ 2.40
No. 1 Kraft	2.65	@ 2.90
No. 2 Kraft	2.50	@ 2.60
Sulphate—		
Bleached	3.75	@ 4.00

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.70	@ 2.90
News Sulphite	2.40	@ 2.65
Mitscherlich	3.25	@ 3.70
Kraft (Domestic)	2.70	@ 3.40
Soda Bleached	3.25	@ 3.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.50	@12.00
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.50	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.00	@ 5.50
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.75	@ 6.50
Miscellaneous	4.75	@ 5.25
White, No. 2—		
Repacked	3.25	@ 3.75
Miscellaneous	2.75	@ 3.00
St. Soiled, White	2.50	@ 2.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.60	@ 1.70
No. 1	1.60	@ 1.70
No. 2	1.35	@ 1.45
No. 3	1.25	@ 1.35
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Light Silesias	7.00	@ 7.50
Light Flanneletes	7.75	@ 8.50
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
New Mixed Cuttings	3.00	@ 3.50
New Dark Cuttings	2.75	@ 3.25
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.85	@ 1.90
Dark Cottons	1.65	@ 1.70
Shoppery	1.55	@ 1.60
French Blues	2.25	@ 2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.80	@ 1.90
Domestic	1.80	@ 1.90
Wool Tares, light	1.60	@ 1.70
Wool Tares, heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.50	@ 1.65
Manila Rope—		
Foreign	3.25	@ 3.50
Domestic	4.00	@ 4.25
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.40	@ 3.65
Hard, White, No. 2	2.90	@ 3.05
Soft, White, No. 1	2.90	@ 3.10
Flat Stock—		
Stitchless	1.30	@ 1.35
Overissue Mag.	1.30	@ 1.35
Solid Flat Book	1.25	@ 1.30
Crumpled No. 1	.90	@ 1.00
Solid Book Ledger	1.90	@ 2.10
Ledger Stock	1.60	@ 1.70
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.85	@ .95
Container	.70	@ .80
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	2.10	@ 2.20
News—		
No. 1 White News	1.75	@ 1.80
Strictly Overissue	.85	@ .90
Strictly Folded	.70	@ .75
No. 1 Mixed Paper	.57½	@ .62½
Common paper	.35	@ .40

Compact Crane

Specially suited to the job at a quantity production price

That concisely defines the Compact Crane made by Shepard.

You do not alter your plant, do not change existing conditions to suit the crane, but rather you select a Compact Crane with a trolley arrangement adapted particularly to the job you have in mind.

It is a simplified crane of steel, detailed for strength, braced and stiffened by a unique construction to resist stresses and strains.

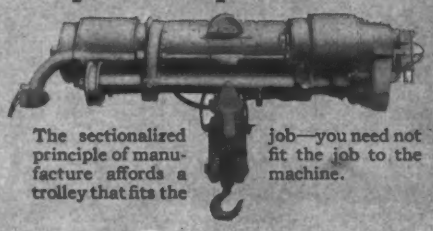
Standardized manufacture combined with a sectionalized trolley feature make available a crane of quality at a quantity production price—and that we believe the prudent crane buyer seeks.

Let a Shepard representative explain fully the advantages of this unique crane—and its economy.

SHEPARD ELECTRIC CRANE & HOIST CO.
378 Schuyler Ave., Montour Falls, N. Y.
Branches in Principal Cities
Largest Manufacturer of Electric Hoists in America

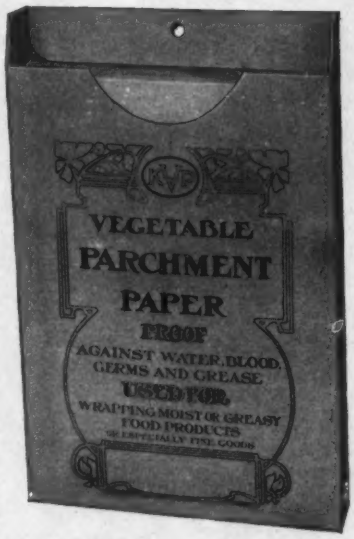
SHEPARD
ELECTRIC CRANES & HOISTS

A trolley for your specific requirements



The sectionalized principle of manufacture affords a trolley that fits the job—you need not fit the job to the machine.

Uncle Jake says—



"Let's do all the business we can honestly, have all the fun we can reasonably, do all the good we can willingly and save our digestion by thinking pleasantly."

We honestly believe that our

KVP GENUINE VEGETABLE PARCHMENT

is the best made, and this without boasting.

We get a lot of fun out of our paper business because we are doing good by making it and selling it and our digestion is always in good working order because we think well of everybody.

KALAMAZOO VEGETABLE PARCHMENT CO. KALAMAZOO, MICH.

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¼	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05½
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	45.00	@	—
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.90
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	1.05	@	1.10
Ledger & Writings	1.55	@	1.65
Solid Books	1.20	@	1.30
Blanks	1.75	@	1.80
Krafts	1.90	@	2.05
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (oversize)	.60	@	.70
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06¾	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.09½	@	—
Manila Sul. No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05	@	.05¼
No. 1 Kraft	.06	@	.06¼
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	47.50	@	50.00
Chip Board	42.50	@	45.00
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	85.00	@	90.00
No. 2, per ton	70.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	66.00	@	68.00
Slaters	70.00	@	72.00
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply	2.10	@	2.15
No. 1 Mixed Paper	.65	@	.70

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	2.25
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.25	@	2.00
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.50	@	1.65
Wool Tares, heavy	3.00	@	3.50
Mixed Strings	1.25	@	1.35
No. 1, New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.25	@	2.50

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.75	@	3.00
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.65	@	1.75
No. 1 Books, heavy	1.25	@	1.30
No. 2 Books, light	.85	@	.90
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.15	@	1.20
Container Manila	.90	@	1.00
Old Kraft	2.00	@	2.20
Common Paper	.60	@	.65
No. 1 Mixed Paper	.65	@	.80
Straw Board, Chip	.70	@	.80
Binders Board, Chip	.70	@	.80
Overissue News	.80	@	.90
Old Newspaper	.65	@	.70

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02½	@	.03
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.50	@	1.75
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	1.50	@	1.60
No. 2	1.37½	@	—
No. 3	1.25	@	1.35
No. 4	1.10	@	1.20
No. 5A	.90	@	1.00
B	.80	@	.90
C	.80	@	.90

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05¾	@	.06½
No. 2 Kraft	.04¾	@	.05¾
Common Bogus	.02	@	.02½
Delivered New England points			
Straw Board, rolls .009			57.50
Straw Board in Sheets, basis 35s to 70s			53.50
Filled News Board			50.00
Chip Board			47.50
Single Manila Pulp lined board	57.50	@	62.50
Single White, patent coated board bender	75.00	@	82.50
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.10
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.60	@	2.85
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	1.95	@	2.00
No. 1 Books, Heavy	1.35	@	1.45
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.40	@	1.60
White Blank News	1.75	@	—
Old Kraft	2.00	@	2.20
Print Manila	.70	@	.80
No. 1 Mixed Paper	.55	@	.62½
Overissue News	.70	@	.80
Old Newspapers	.65	@	—
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	1.75	@	—
Domestic	1.75	@	—
Manila Rope and Strings—			
Foreign	3.75	@	—
Domestic	4.00	@	4.12½
Mixed Strings	1.00	@	—
Scrap Burlaps	1.65	@	—
Wool Tares, heavy	1.75	@	—
New Burlap Cutting	2.25	@	2.37½

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1.	.12½	@	—
Silesias, No. 1	.07	@	.07½
New Unbleached	.10	@	.10½
Fancy	.05¾	@	.06
Washable	.04½	@	—
Cottons—Acording to Grades—Blue—			
Blue Overalls	.07½	@	—
New Black, soft	.04	@	.04½
Khaki Cuttings	.04¾	@	.05¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09½

Domestic Rags (Old)

(Price f. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	5.50	@	5.75
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.00	@	2.12½
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.60	@	—
No. 2	1.40	@	—
No. 3	1.00	@	—
No. 4	1.00	@	1.10

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.60	@	1.65
New No. 1 Shirt Cuttings	.11	@	.11½
Dutch Blues	.02	@	—
Lace Curtains	.05½	@	—
New Checks & Blues	.04½	@	—
Old Fustians	1.80	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rag	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp

(F. o. b. Mill)

Ground wood	25.00	@	28.00
Sulphite easy bleaching	58.00	@	61.00
Sulphite news grade	55.00	@	58.00
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	3.00	@	—
White Blk, News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.40	@	—
Solid Ledgers	1.40	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.47½	@	.52½
No. 1 Mixed Paper	.60	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.12	@	.12½
Fancy Shirt Cuttings	.06	@	.06¼

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Made at Bastrop, Louisiana

Has strongest tear

Exhaustive tests show that Gator-Hide Kraft has stronger resistance to tear than any other Southern Kraft.

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Alpha takes the place of many grades of rags in paper making. It is clean, more economical and can be used without sacrifice of quality.

Also, papers hitherto made without rag stock, can be brought to the high quality goal, by adding Alpha to the furnish in suitable proportions.

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Kaministiquia Pulp & Paper Co. 7s, 1935	@ ow
Lake Superior Paper Co. 6s, 1941	@105
Missisquoi Pulp & Paper Co. 7s, 1929	@ 99
Manitoba Paper Co. 6½s	@ ow
Minnesota & Ontario Paper Co. 6s, 1950	@ 97
Parker Young Co. 6½s, 1944	@ 97
Southern Paper Co. 6½s, 1937	@102
St. Anne Paper Co. 6½s, 1946	@ 99
Spanish River Pulp & Paper Mills 6s, 1931	@108
Westfield River Paper Co. 7s	@ 90

WE WILL SELL

Donnacona Paper Co. Common	@ 75
Eastern Manufacturing Co. 7s, 1938	@ 92
Fort Orange Paper Co. 7s, 1942	@103
Great Northern Paper Co.	@ 73

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No belts-no gears-no extra bearings to take care of!

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This set-up is more compact, and more efficient than belted, geared or chain driven equipment. Also easier to take care of. Belts and their costly maintenance are avoided. So, too, gear adjustments and replacements, and the extra bearings called for by other types of drive.

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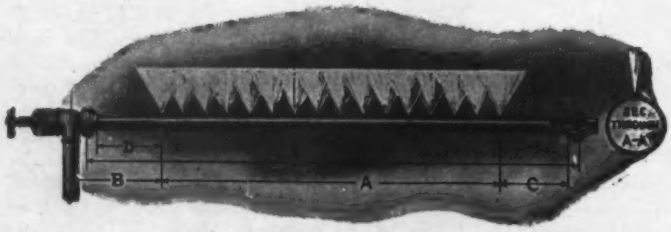
VACUUM PUMPS AND COMPRESSORS

THE "RAINSTORM" SHOWER PIPE



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A Complete Line of Paper Bag Making Machinery

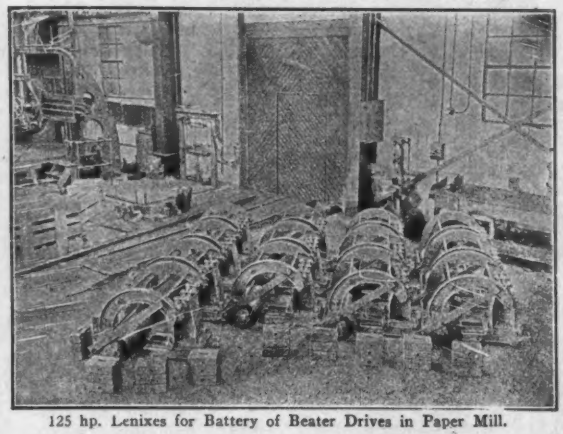
BUILDERS OF DEPENDABLE MACHINERY FOR THE PAPER MILL

The Undercut Trimmer

Die Cutting Presses

The Lenix Drive

(Trade Mark Reg.)



125 hp. Lenixes for Battery of Beater Drives in Paper Mill.

Repeat Orders *mean* Satisfaction *and* Confidence

Complete and lasting satisfaction with equipment already furnished; confidence in the ability of the machinery manufacturer to produce the best equipment for the work to be done:

These are the factors which produce *repeat orders* and which moved one of America's foremost paper manufacturers to purchase Lenix Drives. Various other drives were considered—some lower in first cost—but Lenix Drives were chosen because past performance of Lenixes in that company's plants proved that efficient, economical and reliable drives would be obtained with Lenixes.

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The Lenix is the *pioneer* short center belt drive. More than *eight thousand* Lenixes are now installed in practically every industry. A number of these Lenixes are still in daily service after more than twenty years of operation.

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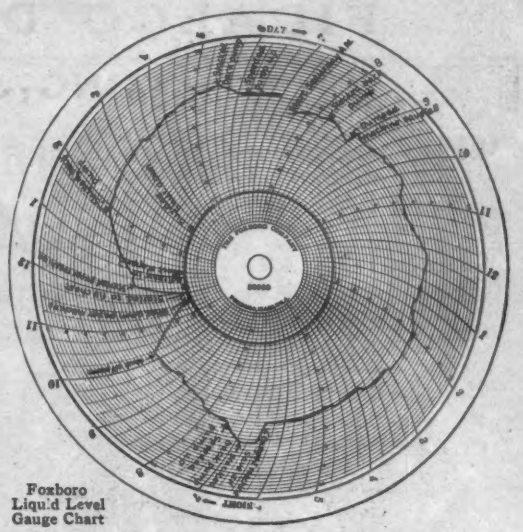

Foxboro Liquid Level Gauge Chart

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A Foxboro Recording Liquid Level Gauge installed on the stuff chest saves time. And time means money in the beater room.

There need be no slowing down of the paper machine because of empty chests. The Foxboro Liquid Level Gauge shows the beater man—at a glance—the exact amount of stock in the chests, when the beaters are dumped or should be dumped. It even shows when the machine is stopped and started.

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(Patented)

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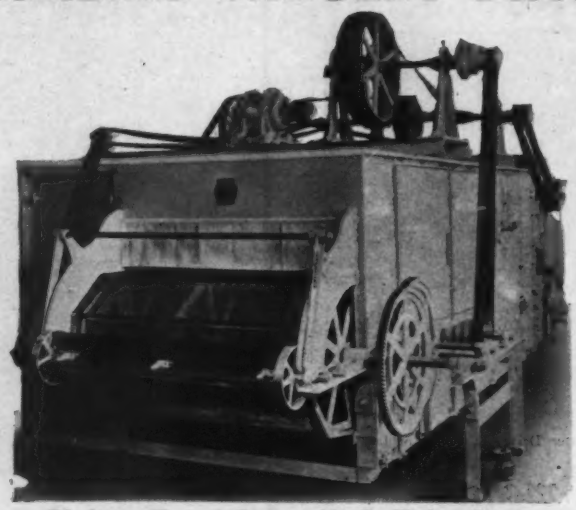
UNITS—20 to 100 tons air dried pulp daily.

STRENGTH — Air drys in shredded form, retains same strength as wet sheets.

CLEANLINESS—Dried in enclosed insulated chamber not pressed until dry.



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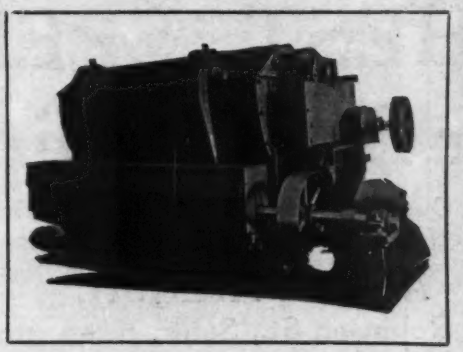

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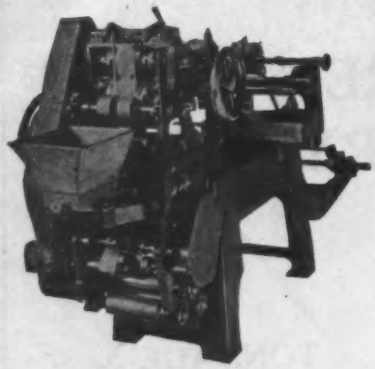

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Philadelphia Paper Mfg. Co., Phila., three orders, total	2400 H.P.
Jessup & Moore Paper Co., Phila., four orders, total	4750 H.P.
Ontario Paper Co., Ltd. For Daily Newspaper Co., North Tonawanda, N. Y.	2034 H.P.
Filer Fibre Company, Filer City, Mich.	1500 H.P.
John Lang Paper Co., Philadelphia, Pa.	416 H.P.
Bayless Manufacturing Corp., Austin, Pa.	1300 H.P.
Northern Board & Paper Co., San Francisco, Cal., two orders, total	400 H.P.
Crown Williamette Paper Co., San Francisco, Cal., two orders, total	750 H.P.
Delaware Hard Fibre Co., Wilmington, Del., two orders, total	920 H.P.
Kieckhefer Container Co., Delair, N. J.	1800 H.P.

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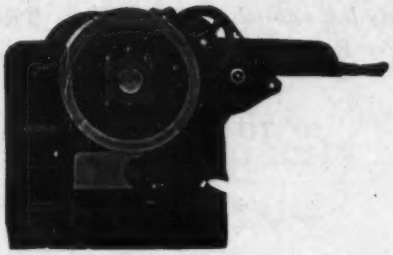

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GDC

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New Paper Specialties

or if you are confronted with color problems of any kind, such as fastness to light, fastness to alkali, two-sidedness, please consult our newly equipped laboratories and our experienced staff.

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GENERAL DYESTUFF CORPORATION

Cut Your Paper Handling Costs 25%

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SKID-EM-ON TRUCKS

SKID-EM-ON trucks are built for the hardest kind of use. They are built low and are scientifically designed to carry the load evenly on specially bushed wheels, hardened axles and roller bearings.

Made of structural steel and will stand the wear and tear of daily use for a lifetime.

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Central Machine Works

437 S. Senate Ave., Indianapolis, Ind.

FINE FACE FELTS FOR FINE PAPERS

ENGLISH or BAKER WOVEN

Absolutely leave no felt marks in paper. TRIUNE Three Ply Felts insure large production. Made from

60" TO 214" WIDE

FITCHBURG DUCK MILLS

FITCHBURG, MASS.

82 Years Making Fine Face Felts for papermakers

Dietz Toilet Paper Machines

For making Toilet and Paper Towel Rolls (With or without perforations)

Self Adjusting — Easy to Operate

Also

AUTOMATIC TUBE MACHINES

Manufacturers of Sanitary Crepe Towel Machines, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.

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DIETZ MACHINE WORKS

126-128 W. Fontaine Street
Cor. Waterloo St. (between Front & Second St.) and below Diamond St.
Phila., Penna., U. S. A.

DIGESTERS

forge and hammer welded

Blaw-Knox Co., Farmers Bank Bldg. Pittsburgh, Pa.

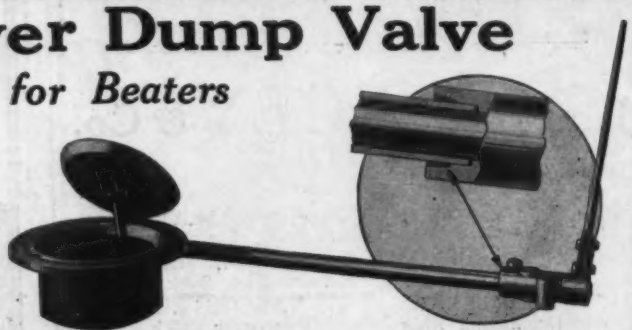
BLAW-KNOX

Dayton Globe Lever Dump Valve

for Beaters

1 Replaces old fashioned flat dump valve
2 Fits any make or size beater—right or left hand
3 Positive in action—lid cannot blow open
4 Very handy and fast—just pull the lever

Can be installed at a reasonable cost in any make beater. Write now for price and details.



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Daily Capacity 525 TONS

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Pittsburgh, Pa.

Iron Body Gate Valves —designed for strength

Fig. 325

Screwed, Jenkins Standard Iron Body Gate Valve

Jenkins Iron Body Gate Valves have globe-shaped body with round-oval neck. This shape, based on the familiar fact that pressure containers possess maximum strength when made in shapes of a circular nature, provides a body possessing a great strength as well as pleasing appearance.

Wedges are accurately machined and inter-changeable, and wedge guides consist of two ribs of equal width, thus permitting reversal of wedge, insuring tight closing under all conditions.

The handwheel, patterned after the steering wheel of a motor car, provides firm grip and easy operation.

In addition to these features there are a number of other refinements that assure valves which will stand the severest service in the use for which they are recommended.

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80 White Street.....New York, N. Y.
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JENKINS BROS., LIMITED
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Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

Lock Your Lamps with REN-LOCKS

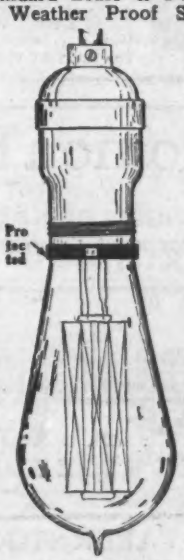
For Standard Lamps and Standard Brass & Porcelain Sockets, and for "Hubbell" Weather Proof Sockets.

The REN-LOCK consists of only two parts

A Coiled Spring—and

A Grooved Ring

A special punch is used to attach the Ren-Lock to the socket.



This bulb is "REN-LOCKED"

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17 Mt. Vernon Street
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Fawcus Herringbone Gear Reductions

They increase production, save labor and decrease wastage on Calenders. Write for literature. Special Machinery—Couplings—Gears.

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For Pressure, Vacuum, Temperature, Liquid Level, Humidity, Speed, Electric Units, etc.

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Paper Converting Machinery Builders Since 1827

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High grade centrifugal and reciprocating pumps for every pulp and paper mill service.

WRITE FOR BULLETINS

Warren Steam Pump Co. Inc.

Warren, Mass. 579

Our Worm Gear Speed Reducers represent the most advanced engineering and the highest type of precision manufacture. Used in many basic industries. Write for Bulletin 251—of interest to you.

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Blow Pits, Acid Storage Tanks, Vats, Etc.

Send us your specifications for prompt shipment

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For All Purposes

Designing Pumps to Fit All Conditions Our Specialty

Perforated Metal Screens

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In Accordance with T. A. P. P. I. Standard Methods

Oils — Paper — Water — Microphotograph

Electrical, Mechanical, Physical, Chemical and Photometric Tests

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Don't Guess at Important Matters

BOWSHER'S SPEED or MOTION *INDICATOR is indispensable*

in obtaining a UNIFORM speed of machinery, and is one of the most PROFITABLE little devices ever put in a mill. Will pay for itself in 30 days. Dial 12 in. in diameter. Weight, 10 lbs.

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FOURDRINIER CYLINDER, WASHER WIRE FOR SERVICE

GREEN BAY WIRE WORKS

GREEN BAY, WISC.

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IMPORTERS OF

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"Your paper is made in your Beaters"

See page 29 last week's issue

NEW TYPE Fast Circulating Beating Engines

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE 115 PARK ROW NEW YORK CITY

Appleton Wires

are good wires

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"THE FOURDRINIER THAT TOOK THE IRE OUT OF WIRE"

INTERNATIONAL WIRE WORKS

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41 East 42nd St., New York

Paper and Woolen Mfrs.' Supplies

COTTON AND WOOLEN WASTE

Warehouse—Hoboken, N. J. Branch office—Holyoke, Mass.

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Oiled Stencil Board

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IN A VARIETY OF GRADES AND COLORS

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The CLEARING HOUSE of The Paper Industry

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"SITUATION WANTED" ADVERTISEMENTS—4c a word, double rates for heavy face type. Minimum charge $1.00. If repeated ½ rate will be charged for each consecutive repetition.

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All classified, "Help Wanted" and "Situation Wanted" advertisements are payable in advance.

HELP WANTED

BEATER ENGINEER—Experienced on high grade box boards and colored specialties. Mill located eastern city. Address, Box 27-637, care Paper Trade Journal. O-27

WANTED—An experienced adjuster on a Lockport machine, both flat and square; also on a Potdevin S O S. State experience and salary expected. Steady position for the right man. All communications will be held strictly confidential. Address, Box 27-502, care Paper Trade Journal. tf.

IF YOU are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established seventeen years. Send only name and address for details. R. W. Bixby, Inc., 117 Downtown Building, Buffalo, New York. tf.

EXPERIENCED BOSS FINISHER WANTED for wrapping paper mill in Virginia. In answering state experience, reference, and salary expected. Address, Box 27-636, care Paper Trade Journal. N-3

If You Know Paper and Can Sell It

A progressive paper house, in New York City, offers a most unusual opportunity to a man whose training and experience in the paper business would qualify him to assume the duties of Sales Manager for a paper jobber that stocks both private and mill brand grades. The man desired will submit convincing proof, of his ability to sell paper, and will possess sufficient executive strength to gradually surround himself with a sales force of competent men. His past work and trade contacts will have given him a thorough knowledge of the requirements of printers, publishers, stationers and advertising agents, and his mental equipment will be sufficiently broad so as to enable him to plan and properly merchandise paper to these sources.

Undoubtedly the particular man sought is presently employed but anxious to avail himself of an opportunity greater than that which his present connection seems to hold. With such a man, we are ready to conclude a very attractive arrangement which will carry with it a salary, plus participation in the profits of our business.

Detailed information relating to personal and business history should be set forth in a letter with the assurance that strictest confidence will be observed. Address communications to Box 27-647, care Paper Trade Journal. tf.

HELP WANTED

WANTED—Assistant foreman, for coating mill in New England. Prefer man familiar with glazed papers. Give details of experience, age, salary expected in first letter. Address, Box 27-660, care Paper Trade Journal. N-10

WANTED—Experienced draftsman and machine designer, schooled on pulp and paper mill machinery equipment. State experience, previous connections, and education. Apply Ryther & Pringle Co., Carthage, N. Y. N-17

TWO experienced sulphate cooks wanted for large Virginia mill. In reply state experience, references, and wage expected. Address, Box 27-657, care Paper Trade Journal. N-3

OPERATORS with experience in the manufacture of glassine. Address, Box 27-598, care Paper Trade Journal. O-27

CALENDERMEN experienced in the manufacture of glassine. Address, Box 27-599, care Paper Trade Journal. O-27

$3,000.00-$30,000.00 men find our Service effective in making connections. Individual. Confidential. Personally planned by JACOB PENN. All mill owners know him, believe in him. Not agency. Jacob Penn, Incorporated, 9 Park Place, New York. tf.

Engineering Draftsman for Pulp and Paper Mill

Competent, capable and willing to work on general plant layouts. Do not want a detailer. A permanent position with every opportunity for advancement offered to the man who can qualify. He must be well trained, thoroughly experienced, and come well recommended.

To obtain an interview, please give full information in first letter regarding age, education, training, experience, and salary desired to

Director of Personnel,
Hammermill Paper Company,
Erie, Pa. O-27

SITUATIONS WANTED

ROPE—JUTE; SUPERINTENDENT. Highly experienced on flour, lime, cement, tags, etc. Good on colors, repairs, new work; handle help, get results. Address, Box 27-649, care Paper Trade Journal. N-3

WANTED—Position as boss machine tender or day foreman. Familiar with both Fourdrinier and Yankee machines. Fine and coarse papers, tissues. References. Address, Box 27-652, care Paper Trade Journal. N-10

PULP AND PAPER CHEMIST desires new connection in Canada with opportunity of advancement. Experience in pulp and paper trade and research. University degrees. References. At present engaged. Address, Box 27-651, care Paper Trade Journal. N-24

MASTER MECHANIC wishes change. Wide awake hustler, will work to employer's interest. 26 years experience, Cylinder, Fourdrinier; electric, steam or water; remodeling and construction. Would consider position as superintendent. References. Address, Box 27-662, care Paper Trade Journal. N-3

AGENCY desired by established sales engineer New York District. Very successful selling to paper manufacturers. Address, Box 27-663, care Paper Trade Journal. O-27

FINISHER—Competent to take charge of finishing and cutter room; 23 years one mill. Address, "F," 5738 No. 16th St., Philadelphia, Pa. O-27

SUPERINTENDENT wants to become connected with mill making test board. My twenty years of experience enables me to produce results and handle help. Best references. Presently employed. Address, Box 27-664, care Paper Trade Journal. O-27

POSITION WANTED as ground wood superintendent or tour foreman. Experienced on all grades of pulp. Best of references. Address, Box 27-666, care Paper Trade Journal. N-10

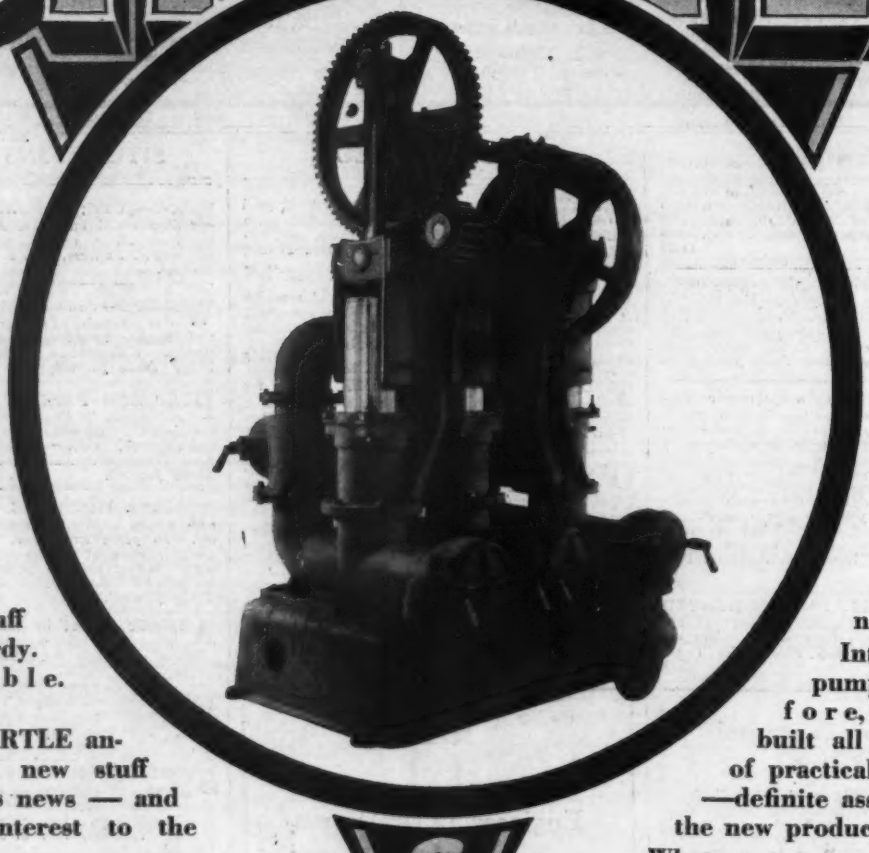
WANTED—Position as superintendent or foreman of mill making binders, leather and other boards. Middle-aged man. Good at construction and repairs. Address, Box 27-668, care Paper Trade Journal. N-10

PULP AND PAPER MILL ENGINEER, technical graduate, 12 years experience on methods of reducing costs, desires change. Build, remodel, or rearrange; full responsibility. Address, Box 27-667, care Paper Trade Journal. N-10

SUPERINTENDENT—30 years experience on all grades news and Kraft papers. Can give best of references; also can report at once. Address, Box 27-670, care Paper Trade Journal. N-17

WANTED—Position as assistant superintendent, night or tour boss. Would consider running machine with opportunity for advancement. Age 40, married. Familiar with all types of machines. A-1 reference. Address, Box 27-603, care Paper Trade Journal. N-10

A NEW PUMP BY SHARTLE



A NEW stuff pump. Sturdy. Accessible. Simple.

When SHARTLE announces a new stuff pump, it is news — and of real interest to the field.

Why? Because the experience gained through having in actual operation more than 1000 stuff pumps, forms a splendid background for the design of a new pump. Into this new pump, therefore, has been built all this wealth of practical experience —definite assurance that the new product is right.

Whatever your pumping problem—no matter how heavy the load or unusual the conditions, you may rest assured that SHARTLE has a pump that can and will do the work.

SHARTLE BROS. MACHINE CO., MIDDLETOWN, OHIO

SHARTLE BROTHERS

DIVISION OF THE BLACK-CLAWSON COMPANY

Paper Mill Machinery

HELP WANTED

WANTED—By paper board mill in Ohio, a machine tender for seven cylinder board machine. Desire a man thoroughly familiar with running combination boards. Address, Box 27-678, care Paper Trade Journal. N-10

EASTERN MILL, manufacturing roll and folded towels, desires intelligent representation. Real opportunity. Address, Box 27-675, care Paper Trade Journal. O-27

SITUATIONS WANTED

FINISHING ROOM SUPERINTENDENT wants position. Familiar with finishing various kinds bleached and unbleached paper, also Kraft, news; practical experience with operation of rotary and press cutters and all operations pertaining to finishing and shipping. Can handle help and run department efficiently. Married. Address, Box 27-682, care Paper Trade Journal. N-17

MACHINE TENDER—30 years of age, married, steady. Well up on all grades of box boards and container. Can furnish excellent reference. Can get maximum results from machine. Available at once. Address, Box 27-676, care Paper Trade Journal. N-10

POSITION WANTED—By man who has had eighteen years experience in the manufacture of all kinds of board. Good at production, maintenance, and initiative ability. Best of references furnished. Address, Box 27-677, care Paper Trade Journal. N-10

CREDIT MANAGER-BOOKKEEPER: Young man, seven years experience with large paper concern, desires new connection with opportunity for advancement. Address, Box 27-532, care Paper Trade Journal. N-3

WANTED

WANTED—To lease with privilege of purchase small one-machine paper mill; complete equipment for manufacturing, plenty of clear water for washing. Give full particulars first letter. Address, Box 27-658, care Paper Trade Journal. O-27

WANTED—One six mill roll stand for Hamblet Sheeter, with or without shafts. Address, Box 27-680, care Paper Trade Journal. O-27

MEISEL OR KIDDER SLITTER WANTED—Can use 36" to 42". State condition and price. Address, Box 27-681, care Paper Trade Journal. O-27

FOR SALE

FOR SALE—One Hamblet Cutter and Erie Layboy in splendid condition, to take care of 52 inch sheet. Any reasonable offer considered. Address, Box 27-679, care Paper Trade Journal. N-3

MISCELLANEOUS

SEND YOUR ODD LOT LIST of coarse and fine papers together with samples to Goldman Paper & Paper Stock Co., 414 So. Front Street, Philadelphia, Pa. tf.

EXECUTIVES WANTED—General manager, superintendent, production and sales. New projected in Middle West. References required. State whether you would make nominal investment. Address, Box 27-674, care Paper Trade Journal. O-27

MISCELLANEOUS

WANTED—To know the whereabouts of William Jones, better known as Billy. Address, Box 27-612, care Paper Trade Journal. N-3

WANTED—Mill ends and job lots in rolls or flats in any quantity, all grades. Also boards. Joseph Goldstein & Sons, 1302-9 N. Halsted Street, Chicago, Illinois. tf.

CLARK MANUFACTURING COMPANY, Holyoke, Mass. Telephone 1828. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight, for fast running machines. 3-5-27

WANTED—Side or odd lot rolls ten to ninety pound basis. The larger the quantity the better we like it. Address, Box 27-481, care Paper Trade Journal. tf.

HEADQUARTERS
For Good Used Machinery

ROTARY DRYERS AND KILNS
6—4' x 30' American Process.
2—6' x 60'.
1—6' x 100'.
1—9' x 125'.

PULPER MIXERS
1—W. & P. size 17-200 gals.
Also several smaller sizes.

TUBE AND ROD MILLS
1—3' 6" x 12' Allis Chalmers.
1—4' x 16' Schmidt.
6—5' x 22' Allis Chalmers.
7—5' 6" x 22' Schmidt.
1—6' x 22' Gates.

SULPHUR BURNERS
1—3' x 8' Glens Falls.
4—4' x 16' Glens Falls.
4—4' x 20' Glens Falls.

EVAPORATORS
1—Stokes Triple Effect, 1,000 sq. ft.
1—Scott Triple Effect, 1,350 sq. ft.
1—Swenson Triple Effect, 1,750 sq. ft.
3—Swenson Triple Effect, 3,300 sq. ft.

ROTARY FILTERS
3—6' x 4' Oliver.
3—6' x 6' Oliver.
3—6' x 6' Oliver, Acid Proof.
1—9' x 9' Oliver, Acid Proof.

SEND US YOUR INQUIRIES
WE BUY YOUR IDLE EQUIPMENT

CONSOLIDATED PRODUCTS COMPANY, INC.
15 PARK ROW NEW YORK, N. Y.
Barclay 0963

FOR SALE
GOOD USED EQUIPMENT

1—Smith & Winchester Cylinder Drying Machine, having 39 dryers, 42" diameter, 88" face, 2 cylinders, 1 calender stack, reel, slitter, etc.
1—64" Union Iron Works Chipper—3—21" knives with C. I. spout 17" dia. wood.
1—83" Baker Chipper—4—16" knives with C. I. spout 14" wood.
2—9' dia. 30' long Manitowoc Incinerators with drives.

DIFFUSERS AND TANKS FOR SODA OR SULPHATE

9—9' 6" dia. x 18' high Diffusers.
2—12' 6" x 20' high storage tanks.
4—14' dia. x 10' high Caustic Tanks.
3—12' dia. x 6' high dissolving tanks.

TECHNICAL ECONOMIST CORPORATION
40 RECTOR STREET
New York, N. Y. Telephone Whitehall 5243
Cable: Herenco.

FOR SALE

1—72" Hamblet Single Cutter with 24 roll back stand.
1—84" Beloit heavy duty duplex.
1—84" Black-Clawson heavy duty duplex, with duplex slitter.
1—52" Moore & White Cutter with Moore & White Layboy and Backstands.
1—48" Moore & White Cutter with Moore & White Layboy and Backstands.
1—42" Moore & White Cutter with Moore & White Layboy and Backstands.
1—60" Hamblet Cutter with 10 roll Backstands.
1—110" Moore & White Cutter with Moore & White Layboy and Backstands.
1—82" Heavy duty Hamblet Single Cutter with 24 roll Backstands.
2—58" Moore & White Single Cutters.
4—54" Moore & White Single Cutters.
6—48" Moore & White Single Cutters.
1—57" Hamblet Duplex Cutter. Heavy Duty.

The Shartle Brothers Machine Co.,
Middletown, Ohio tf.

Your Card in This Space Will Bring Results

Rates on Application

SITUATIONS WANTED

PAPERMAN, age 31, desires position with responsible house. Assets: Thorough knowledge of both Domestic and European qualities; mastering English, French, German and Spanish; particularly versed with export to Latin America. Address, Box 27-661, care Paper Trade Journal. O-27

JOB—Board or paper specialty superintendent, tour or night boss. Communicate and will convince you of my ability to get results. Record will stand investigation. Address, Box 27-620, care Paper Trade Journal. O-27

WANTED—Position as night superintendent or tour boss in mill making all grades of test board. Can furnish the best of references. Age 36. Address, Box 27-665, care Paper Trade Journal. O-27

POSITION WANTED—Superintendent or foreman; chip board or wrapper mill. Experienced at construction and remodeling. Eastern states preferred. Address, Box 27-669, care Paper Trade Journal. N-10

SUPERINTENDENT—Trained in the manufacture of tissues, all grades, plain and creped; high grade Kraft papers, converting specialties, crepes, waxing, crepe towels, and Kraft, waxed Kraft. Address, Box 27-563, care Paper Trade Journal. N-10

POSITION AS MASTER MECHANIC—20 years experience handling men and upkeep; repairs, new work and erecting. Best of reference. Address, Box 27-585, care Paper Trade Journal. O-27

MILL OR PRODUCTION MANAGER—Now superintendent of a well known mill, but want to make a change. A splendid business and paper making experience with an excellent production record. Well educated. Address, Box 27-501, care Paper Trade Journal. O-27

SUPERINTENDENT—Trained in the manufacture of box board specialties, tag and coating mill boards, can guarantee quality, production, efficiency, and good organizer. Address, Box 27-593, care Paper Trade Journal. tf.

PULP AND PAPER MILL ENGINEER, with many years experience in design, construction and maintenance, desires position. References. Address, Box 27-470, care Paper Trade Journal. N-3

MILL CONNECTION WANTED—Capable experienced salesman desires mill connection. Years of experience in the sales of both coarse and fine paper. Willing to travel. Highest credentials as to ability and integrity. Address, Box 27-490, care Paper Trade Journal. tf.

ENERGETIC YOUNG TECHNICAL SERVICE CHIEF, University graduate, capable of organizing and directing economical technical control in sulphite, ground wood and news; proven executive ability. At present employed. Address, Box 27-638, care Paper Trade Journal. O-27

FACTORY MANAGER or assistant in paper bag and specialty factory. Experienced in every branch of the business. Address, Box 27-631, care Paper Trade Journal. N-3

PULP AND PAPER MILL SUPERINTENDENT—Wants similar position in sulphite or Kraft pulp and paper mill. 40 years old, 18 years practical experience. Graduate chemical engineer. Has done research work on cooking of sulphite and Kraft pulp, bleaching, beating and soda recovery. Also mill construction. At present in charge of production in a Kraft pulp and paper mill. Address, Box 27-566, care Paper Trade Journal. O-27

FOR SALE

Two Noble & Wood Pulp Breakers; 1200 lbs. capacity

Used only a short time

Frank H. Davis Company,

175 Richdale Avenue,

Cambridge, Mass.

SITUATIONS WANTED

SUPERINTENDENT—Experienced on all grades of board, test container, chip, wall board, pie plate, bottle cap, etc. Desires new connection with high grade mill. Handles help successfully, A-1 on repairs, is a real papermaker, with highest credentials and A-1 production record. Address, Box 27-618, care Paper Trade Journal. N-3

SALES OR SERVICE MAN of paper mill supplies by a practical paper maker who has had selling experience and knows all departments of the mill. Address, Box 27-645, care Paper Trade Journal. N-10

SUPERINTENDENT with 15 years experience on high test container and combination board desires position. Have excellent record for quality and production and can furnish the best of references. Address, Box 27-648, care Paper Trade Journal. N-3

PULP CHEMIST, University graduated chemical engineer, 5 years experience in high grade bleached sulphite pulp. Familiar with all kinds of mill control work. Age 29, married. Now employed but desires change. Best of references. Address, Box 27-640, care Paper Trade Journal. O-27

SALES MANAGERS—Chemical engineer, age 27, single, intensive experience in all methods of news, ground wood and sulphite manufacture, seeks sales position. Well read and of good manners. Address, Box 27-639, care Paper Trade Journal. O-27

PAPER MAKING MACHINERY DESIGNER AND GENERAL PLANT ENGINEER open after September 1st. Long and practical experience on this class of work, together with a number of years selling experience. Address, Box 27-497, care Paper Trade Journal. tf.

FELT SUPERINTENDENT—Ten years with representative mill making dry felt and flooring. Desires change. Capable of getting production and quality. Best references. Address, Box 27-523, care Paper Trade Journal. tf.

ASSISTANT SUPERINTENDENT — College graduate, chemist, nine years practical experience and research in rag fine writing papermaking and specialties, desires position with opportunity for advancement. Address, Box 27-320, care Paper Trade Journal. tf.

SUPERINTENDENT—Open for position October 1st. Book, bond, writing, waxing, hanging, board and other grades. Can handle help and get results. Go anywhere. Address, Box 27-586, care Paper Trade Journal. N-10

STRAW BOARD AND LIGHT WEIGHT—Experienced man, 45 years, with mechanical and chemical knowledge, wishes position as superintendent or foreman. Address, Box 27-650, care Paper Trade Journal. N-3

FOR SALE

6—Dayton Beater and Hoist Iron tub Beaters, rolls 56 x 50.

1—Wood tub Beater, practically new. Roll 70 x 66. Made by Emerson Mfg. Co.

1—Heavy duty Beloit 114" Paster.

4—Jones Washers. Iron tubs. Rolls 67 x 60. Good shape.

1—Dayton Beater and Hoist Iron tub Beater. A-1. Rolls 64" diameter, 54" face.

1—Breaker Roll 64" diameter by 54" face.

1—Downingtown Iron tub Beater with Brownell Bushler perforated back fall. Rebuilt for immediate shipment. Roll 44" x 44".

The Shartle Brothers Machine Co.

Middletown, Ohio tf.

FOR SALE

FOR SALE—In New Jersey—To settle an estate; a small high grade paper mill manufacturing light weight manitold typewriting and twelve to twenty pound (24 x 36 weight basis) grease proof parchment which can also be glassined and waxed. Excellent location, excess water power. An unusual opportunity. Easy terms of purchase. Address, Box 27-632, care Paper Trade Journal. N-3

FOR SALE—Barber roll making machine, practically new. Address, Box 27-629, care Paper Trade Journal. O-27

FOR SALE—Second-hand 1200 lb. wood tub N. & W. beater. In good condition. The Noble & Wood Machine Co., Hoosick Falls, N. Y tf.

FOR SALE—Three-color extra wide Rotary Printing Press. Address, Box 27-673, care Paper Trade Journal. O-27

FOR SALE—6 No. 3 Moore & White Speed Changes suitable for driving sheet cutters. Apply to Warren Manufacturing Company, Milford, N. J. N-17

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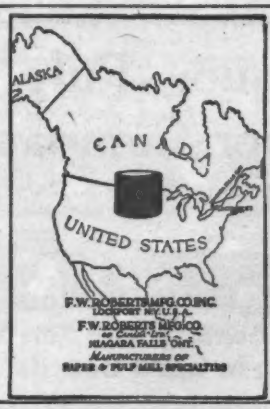

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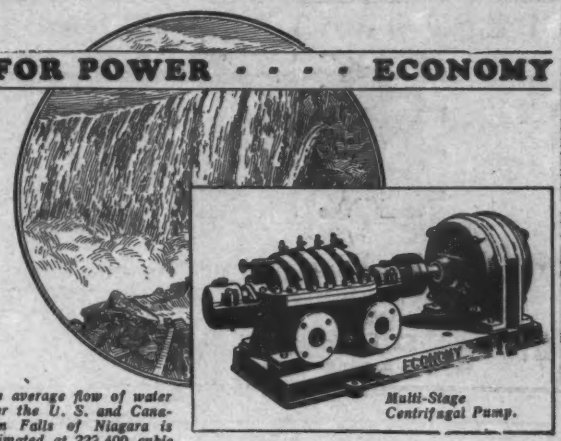

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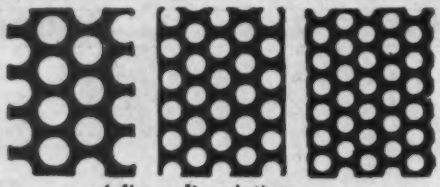

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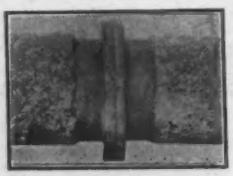

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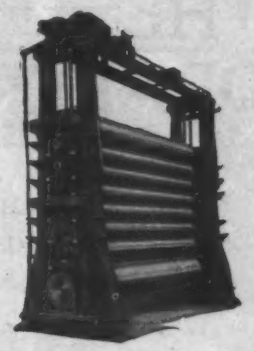

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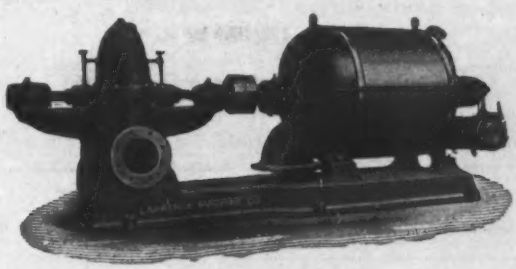

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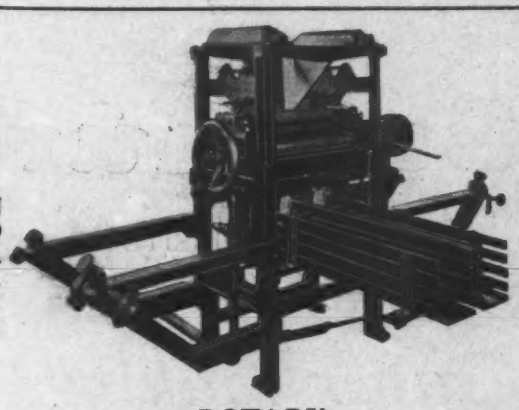

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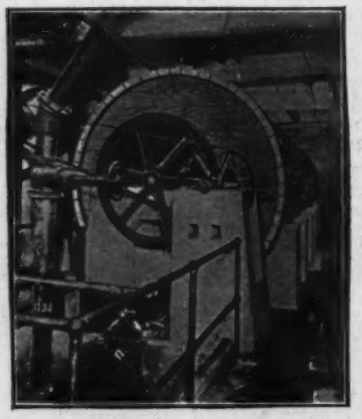

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